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ABSTRACT

Designed to improve the long-term operational efficiency of the Montgomery County, Maryland, Public Schools (MCPS) payroll system, this study begins with an executive summary, including a set of recommendations and a chapter-by-chapter synopsis. Following an introduction to the study and a general description of the payroll system in chapters 1 and 2, chapters 3 and 4 provide an evaluation of the system's set of internal controls and its relationship to the primary repository of employee information known as the Personnel Master File. Chapters 5 and 6 focus on Leave Accounting and Attendance Processing, which constitute the core of the payroll system; chapter 7 addresses the issue of multiple payroll cycles. Chapters 8-10 analyze other attendance processing issues, the benefits of direct deposit of an employee's pay, and the role of the Division of Payroll Operations. The study concludes with a chapter on strategies for the systematic implementation of its own recommendations. Proposals include consolidating MCPS's six existing payrolls into two payrolls and standardizing leave and attendance reporting to an hourly basis for all employees. (JBM)

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MONTGOMERY COUNTY
PUBLIC SCHOOLS
ROCKVILLE, MARYLAND

Report on the Payroll System

November 1982

MORE MANAGEMENT OPERATIONS REVIEW & EVALUATION

EDWARD ANDREWS
Superintendent of Schools

Prepared by the Department of Educational Accountability

EA 016 107

REPORT ON THE PAYROLL SYSTEM

by

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with

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EXECUTIVE SUMMARY

REPORT ON THE PAYROLL SYSTEM

General Conclusions of the Study

The outcome of this study includes a substantial number of recommendations which, taken together, are designed to improve the long-term operational efficiency of the Montgomery County Public Schools (MCPS) payroll system. Because of the linkage among the recommendations, it is important that the resulting payroll system be viewed and understood as a whole and that implementation proceed as a coordinated effort. Historically, payroll system computer programs have had a series of quick fixes with little or no lasting benefit. Only through a coordinated design of a new payroll system can the recommendations of this study be implemented in an effective manner which will assure the full cost savings identified in the report. However, a coordinated design for the supporting computer software can only follow from coordinated school system policies and procedures with which all involved can agree and enforce.

The report recommends a series of actions which promise to provide a net annual savings of $58,000 in the short run and an additional annual savings of $529,000 in the long run after a new payroll system is in place. The latter savings is divided into $133,000 of recoverable savings and $396,000 of opportunity cost savings, largely in computer time. These savings are identified later in this Executive Summary and detailed in Chapter 11 of the report.

Payroll Issues and Characteristics

Given the significant payroll-related issues identified in the course of this study, the solutions which appear best to address those issues effectively and efficiently, and the potential savings from implementing the solutions, the recommended characteristics of the new payroll system are as follows:

- The six existing payrolls should be consolidated into two payrolls.
- The staggered pay dates and multiple paychecks should be consolidated to provide a single biweekly pay date for all employees with total compensation for each employee included in a single paycheck.

- Employee group common characteristics, rather than employee group distinctions, should drive the payroll system design.

- The automated payroll system should be designed to accomodate the mass of payroll activity which shares common characteristics, and should avoid specifying exception capabilities to process infrequently occurring transactions.

- Leave accounting information should be incorporated into the proposed human resources (personnel) management system, and fully automated leave accounting functions should be automatically triggered by personnel actions.

- Automated capabilities should be sufficiently flexible to minimize restraints on personnel management.

- Provision should be made for using on-line terminal entry and access.

- A direct deposit program which is voluntary for present employees but mandatory for new ones should be implemented.

- The Division of Payroll verification activities which are redundant to or replicate controls located elsewhere should be eliminated.

In order to allow a new payroll system with the above characteristics to function effectively, a set of supporting recommendations dealing with how employee attendance and leave are processed must be implemented. These are as follows:

- Leave and attendance reporting should be standardized to an hourly basis for all employees.

- Extended year employment and extracurricular activities stipend attendance data should be collected concurrently with regular attendance data.

- On-line attendance data entry procedures which provide for immediate error feedback should be considered.

- Within the Division of Payroll, (a) checks for attendance validation and employee authorization for pay should be moved to the beginning of the payroll cycle; (b) more reliance should be placed on computer controls for basic attendance edit and verification requirements; and (c) attendance voucher corrections processing should be automated.

The study also identified a number of issues which are not directly payroll matters, but which impact on the design of the payroll system or the methods for processing attendance. Because these are not primarily payroll issues and can only be properly addressed in a larger management context which measures benefits to the payroll system against any potential detriments to other systems, this study is unable to make specific recommendations on these issues. However, they are highlighted here so that senior managers can

determine which they may wish to address prior to the final design of the payroll system. These issues are as follows:

- Position control data maintenance should be integrated with the budget information system.
- The new human resources management system should consider features which improve the timeliness and reliability of employee information in position control and personnel master files which feed the payroll system and must consider other specifications to accomodate the payroll redesign described in this report.
- The requirements of policies and administrative practices which create distinctions among employee groups should be reevaluated.
- Personnel procedures relating to supported projects should be modified to conform with administrative policy.
- The effectiveness of policies and procedures for approving disability leave and handling workman's compensation cases should be evaluated and improvements introduced.
- The basis for determining compensation for all types of extracurricular activities should be standardized.
- The need for special fiscal year-end payrolls should be eliminated.

Implementation Authorization and Responsibilities

Most of the issues identified directly with the payroll system can be addressed and implemented within the Office of the Associate Superintendent for Supportive Services. However, implementation of a direct deposit program may require Board of Education action and/or negotiations with regard to whether the program will be mandatory or voluntary for new employees and for certain aspects of the procurement process in contracting with a financial institution.

In contrast, very few of the non-payroll issues identified above can be resolved administratively within one office. Although these modifications to personnel policies and procedures represent a significant avenue for further streamlining payroll operations, addressing them requires a coordinated administrative effort which can weigh the relative benefits and drawbacks to non-payroll aspects of MCPS and, where changes are eventually recommended, Board of Education actions or negotiations.

The MORE Study of Personnel Services, which is being conducted under external contract and which has a report due in January, 1983, may contribute important findings and recommendations on many of the non-payroll issues. In any case, it is important to remember that, if a new payroll system is to be purchased

or built in FY 1985, these issues must be resolved quickly in order to permit system specifications to be written.

* * * * * *

The remainder of this Executive Summary is in two sections. The first section provides an overview of the study and summarizes the findings and recommendations highlighted previously. The second section outlines a strategy for implementation of the recommendations and summarizes the cost savings.

Summary of the Study and Its Findings and Recommendations

Introduction to the Study (Chapters 1 and 2)

In 1979, the Board of Education of the Montgomery County Public Schools (MCPS) directed the superintendent to undertake a series of Management Operations Review and Evaluation (MORE) studies of all units of the school system except school-based instruction. A primary factor leading to selection of the payroll system as one of the earlier processes for study was that salary expenditures which flow from the payroll system comprise approximately 77 percent of the total MCPS operating budget.

The payroll system is comprised of procedures which assure administrative authorization for personnel actions, maintain employee compensation information, collect employee attendance, and combine attendance data with compensation information to produce employee paychecks. The system transcends organizational boundaries to encompass the actions of a large group of participants: the Division of Payroll, school and office timekeepeepers, the Department of Personnel Services, the Department of Management Information and Computer Services, and the Division of Accounting.

The payroll system is divided into six separate payrolls, each of which operates as a distinct independent system. These payrolls, of which four operate on biweekly pay cycles, annually produce approximately 365,000 employee paychecks. Pay dates for the various payrolls are staggered so that at least two payrolls are always in process each week.

The three elements which comprise the primary payroll system functions are employee recordkeeping, leave benefits accounting, and attendance and pay processing. Employee payroll-related information is stored on the computerized Personnel Master File (PMF). Responsibility for general maintenance of employee PMF records resides with the Department of Personnel Services. The Division of Payroll accounts for employee leave benefits using an independent recordkeeping system under which informational linkage between leave files and the PMF is supported manually by payroll clerks. Salary payments are contingent upon Division of Payroll processing of employee prepared attendance documents collected and summarized by the individual schools and departmental reporting units.

The payroll system is not a self-contained organizational unit. The ability of the system to effectively meet its assigned task of providing prompt, accurate paychecks is largely dependent on information provided by sources whose payroll-related functions are incidental to their regular duties. Lacking a self-contained structure, the payroll system is in a reactive position which dilutes its ability to either coordinate or efficiently adapt to environmental changes. Also, the computer software technology under which payroll operates is obsolete. Computer programs have remained constant in the face of ongoing administrative changes, leaving to payroll clerks the responsibility of satisfying changing requirements without the benefit of computerized support.

Evaluation of System Integrity (Chapter 3)

Controls intended to assure that only properly authorized individuals are eligible to receive salary payments are in effect. Employee attendance vouchers are reviewed and approved by a responsible official. The system of verification checks and controls appears adequate to provide reasonable assurance that errors which may occur during leave and attendance processing will be detected and reentered for correction on a timely basis. However, transactions manually computed by Division of Payroll clerks are not subject to a system of approval or review. In addition, the lack of a separate mechanism on the substitute teacher payroll for reprocessing attendance error corrections conflicts with proper internal control. Further, security and control over access to payroll-related data relies heavily on the segregation of responsibilities and transaction audit trail reports.

Recommendations: (1) Require supervisory review of manually computed leave and salary adjustments. (2) Implement a separate mechanism through which substitute teacher attendance error corrections can be reprocessed. (3) Expand automated controls in the extracurricular activities payroll for application against manual adjustments to stipend payments. (4) Implement in full the recommendations of the MORE study of data processing regarding password procedures and software security.

Employee Payroll Records (Chapter 4)

The payroll system, because of its reliance on position control and the Personnel Master File (PMF), is impacted by matters affecting the level of efficiency and effectiveness of these personnel information systems. Position control functions independent of, and is incompatible with, the budget process on which it is purportedly based. Problems in position control edit procedures and the disconnected manner of transmitting budgeted position actions expose the employee recordkeeping process to delays in maintaining up-to-date PMF information. Payroll-related information contained in the PMF was found to be accurate, but the process of getting that information into the

PMF is inefficient and problematic. The MORE Study of Personnel Services will continue analysis of these issues to form a balanced perspective from which recommendations may evolve.

Payroll processing programs lack the capability in a given pay period to compensate employees at more than one rate of pay or to distribute salary payments to more than one budget account. This limitation is overcome, whenever possible, by requiring that personnel actions be made effective only as of the first day of a pay period; and when not possible, by imposing upon the Division of Payroll a manually supported process of treating in-period personnel actions on a retroactive basis. The PMF updating mechanism prevents recording any personnel actions affecting employee salary-related information during the time frame in which payroll attendance is being processed. However, this freezing of the PMF also prevents recording late changes or corrections in payroll information otherwise required to assure correct employee compensation or proper budget account distribution. Processing such actions when the PMF is frozen requires clerical intervention and manual correction.

Employees can be compensated, although their PMF records contain an invalid budget account code. However, because an account is not authorized, the salary expenditure will not be recorded in accounting records. During the period from July, 1981 through November, 1981, approximately $478,000 of salary payments went unrecorded for varying lengths of time.

The Division of Payroll devotes approximately two person years (about $32,000) annually to reviewing Personnel Action Notices and balancing daily controls over all salary-related information in employee PMF records. Aspects of these control procedures are ineffectual and redundant to verification procedures applied by the Department of Personnel Services.

Recommendations: (1) Provide the capability to compensate employees on a multiple salary rate basis and the ability to distribute salary payments to multiple budget accounts. (2) Provide the capability to process corrective personnel actions during the period the Personnel Master File is frozen. (3) Eliminate ineffectual or redundant verification procedures and automate calculations of daily changes in control balances. (4) Amend procedures involving salary authorization for supported projects employees to conform with administrative policy for determining eligibility for compensation.

Leave Accounting (Chapter 5)

Although the leave accounting process is structurally dependent upon personnel recordkeeping and attendance processing, the accounting for leave benefits operates independent of other personnel/payroll functions. Personnel activity which affects leave information must be processed twice: recorded first in the PMF and then separately recorded in leave files. Further, while there is on-line data retrieval of employee information contained in the PMF, leave information is available only through biweekly produced leave balance reports.

In contrast, leave reporting is integrated with attendance processing, with leave files automatically updated during attendance processing to reflect leave taken by employees, leave earned during the pay period and new cummulative leave balances.

Overall, the leave accounting process is inefficient. With the one exception of leave attendance processing, the leave accounting function currently lacks the benefits achievable through system automation and is almost entirely supported by clerical efforts.

Full-time professional employees report attendance on a basis of days worked, in either one-half or full day increments. All other employees, including part-time professional employees, report attendance on a basis of hours worked, including fractions thereof. Daily basis reporting by one group negatively impacts leave accounting because of the complexity of maintaining employee leave records on both hourly and daily bases and because it prevents these employees from accurately reporting leave usage.

Employee biweekly paycheck stubs disclose sick and annual leave balances available for use by employees, including leave advanced in anticipation of employees' working their full annual work schedule. Leave balances so presented are not adjusted during the year when an employee, because of absences without pay, fails to earn all leave advanced. There were 913 employees in fiscal 1981 who ended the year with negative leave balances. It is probable that most, if not all these employees, were unaware of their position until finding their fiscal 1982 advance reduced by the amount of unearned leave from the prior year.

The granting of disability leave benefits is contingent upon acceptance of a workmen's compensation claim by Montgomery County Claims, Inc. However, separate systems exist for processing disability leave and workmen's compensation. The procedures for approving disability leave benefits are, at best, not relevant and at worst create substantial risk to an employee for repayment of contingent disability leave benefits should his/her workmen's compensation claims be disallowed.

Recommendations: (1) Incorporate all leave accounting information into the Personnel Master File. (2) Consolidate employee recordkeeping procedures into one system which recognizes leave information maintenance as an extension of general personnel recordkeeping. (3) Introduce computer technology to minimize reliance on clerical intervention, improve integrity of leave information, facilitate monitoring of compliance with MCPS leave policies and improve data access and retrieval. (4) Standardize leave and attendance reporting by applying the same hourly reporting basis to all employees. (5) Reduce leave balances disclosed on employee paycheck stubs during the year for any portion of advanced leave which will not be earned by an employee. (6) Establish a committee with a mandate to study disability leave/workmen's compensation policies and procedures.

Attendance Processing (Chapter 6)

Payroll teams apply a number of procedures which are intended to verify the accuracy of employee attendance prior to its submission for computer processing. In large measure, the application of these procedures is either redundant or inappropriately matched with functional responsibility. Payroll teams ignore the responsibilities and/or capacity for attendance verification provided by reporting units. Further, application of these procedures are generally redundant with computer processing edit controls.

Attendance documents are processed in batch mode, which includes control over the number of attendance records plus some combination of controls over reported attendance categories. Payroll teams calculate and record control balances on control sheets. A sample survey of location timekeepers found that over 60 percent of the timekeepers also calculate attendance totals, but in accordance with payroll instructions, do not record these totals on summary attendance documents forwarded to the division. In addition, attendance processing error identification is limited by the absence of batch controls which would detect processing errors in leave classification.

Accounting for leave reported through attendance processing is an effective operation. Automated procedures are efficient and appropriately complement the objectives of this phase of the attendance process.

Dual authorization validation procedures are built into the attendance process. This dual validation necessitates rapid error reprocessing and increases the number of computer production cycles required to process attendance. Further, the more significant of the two checks, the one for PMF authorization, does not occur until late in the cycle, although the requisite need for resolution arises earlier in the attendance process. Shifting the PMF authorization check forward would consolidate early in the attendance cycle all procedures directed toward error identification.

Recommendations: (1) Redesign the attendance processing cycle. (2) Eliminate redundant attendance validation procedures. (3) Reassign to reporting units the responsibility for taking batch control totals, define reporting location as the appropriate level from batch controlling attendance data, and extend batch processing control elements to include control over postings to individual leave categories. (4) Revise scheduling to set Monday following the end of the pay period for reporting unit submission of attendance documents to the Division of Payroll.

Multiple Payroll Cycles (Chapter 7)

The attendance process is segmented by employee groups. There is, in fact, not one payroll, but six separate payrolls which, annually process 122 payment cycles.

Each payroll functions as an independent, stand alone system. Separate payroll teams are dedicated to each payroll; there are specialized employee attendance vouchers and collection procedures; independent daily verification control totals are maintained; and each payroll is subjected to individualized computer processing. While each payroll is functionally distinct, they are not in fact wholly independent systems. All payrolls use the same Personnel Master File, share computer software applications and may be providing separate compensation to the same employees.

Under current MCPS policy, there are characteristics which distinguish certain employee groups from others. The importance given to employee group distinctions has been a contributing factor to the historical evolution of the payrolls. Less importance has been attached to common characteristics among employee groups.

Emphasizing the existence of common characteristics provides a basis on which to replace the current multiple payroll structure with a consolidated payroll system. Recommended is a two payroll structure, a permanent employee payroll and an other employee payroll. These two payrolls would have separate attendance collection and processing cycles. Both payrolls would be combined into the same payment processing cycle so that compensation to employees from all sources would be combined into a single biweekly paycheck.

The complexity of the payroll structure is affected also by personnel policy. The extended year employment program, summer assignments of support personnel and variable bases for extracurricular activities are examples of policies which add complexities to payroll operations. Reevaluation of administrative personnel policy offers another avenue by which simplification of payroll attendance processing can be achieved.

Recommendations: (1) Design and develop a new payroll structure which capitalizes on common characteristics between existing payroll groups. (2) Incorporate a redesigned payroll structure into the overall plan for replacement of the current payroll system. (3) Include specifications in the proposed development of a human resources data base system to accommodate a redesigned payroll structure. (4) Consider a distributed system network to replace batch processing as the mode for payroll attendance data entry. (5) Reevaluate administrative and/or Board of Education policies which significantly impact the complexity of payroll procedures.

Other Attendance Processing Issues (Chapter 8)

Attendance voucher corrections are processed by a system of manual procedures entirely outside regular attendance processing. Location timekeepers responding to a sample survey listed correction of employee time estimates (89.7 percent) and correcting mistakes on summary attendance vouchers (74.4 percent) as the two most frequent reasons for using voucher corrections. Chapter 6 recommends steps which if taken would eliminate the need for employees to estimate their attendance. In so doing, the major source of voucher corrections would be eliminated. Incorporating other types of voucher

corrections into the regular attendance processing cycle would automate the corrections process and provide for leave and salary adjustments without involving substantial clerical resources.

At the end of each fiscal year, special payrolls are processed as a means for cutting-off activity between fiscal years. Operating special pay cycles as the means for satisfying year-end cutoff requirements is not cost-effective as it requires not only all the costs associated with processing an attendance cycle, but also generates overtime and complicates the transition between fiscal years.

Employees who hold more than one position are paid separately for time worked in each position. This practice may result in substantial underwithholding of income taxes from employee paychecks. In addition, the method for computing tax withholdings applicable to extracurricular activities salary payments does not comply with the Internal Revenue Service regulations regarding withholding on supplementary wages. Chapter 7 recommends an alternative payroll structure which by consolidating compensation from all sources into a single paycheck would eliminate deficiencies in current tax withholding methodology.

MCPS Regulation 280-1, dated July 24, 1981, was developed to assure payments for personal services made out of school Independent Activity Fund (IAF) accounts complied with federal and state tax laws regarding social security (FICA) tax remittances and annual reporting of gross earnings on Forms W-2. Prescribed procedures are cumbersome and were developed only as a temporary measure with the intent of eventually incorporating these payments into the automated MCPS payroll system.

Recommendations: (1) Incorporate into the attendance processing cycle automated procedures for processing attendance voucher corrections. (2) Eliminate the need for special fiscal year-end payrolls by implementing a plan which provides for leave accounting based on a 26 pay period year ending the last pay prior to June 30; and either make annual cost-of-living adjustments effective as of the first full pay period subsequent to July 1, or allocate attendance in the pay period straddling June 30 on a ratio basis for application of new July 1 salary rates. (3) Include in negotiations for Association agreements beginning July 1, 1984 and July 1, 1985, contractual modifications enabling implementation of a plan to eliminate the need for special fiscal year-end payrolls. (4) Determine income tax withholding on extracurricular activities payments based on a flat 20 percent rate. (5) Incorporate compensation for personal services to independent school activities into employees' regular MCPS paychecks.

Analysis of Direct Deposit (Chapter 9)

A telephone survey, conducted of nine Maryland Public School systems and the Maryland State Department of Education, found that seven of the nine educational agencies surveyed were using a direct deposit program. Employee participation rates in the voluntary direct deposit programs ranged from 25 to 50 percent, with an average participation rate of 34 percent. Most school

systems participating in a direct deposit payroll system saw little or no economic benefit to their organizations, but viewed direct deposit primarily as an employee benefit.

A cost analysis found that direct deposit would generate net annual savings to MCPS. The major cost consideration is the cost of float (lost investment opportunity arising from requirements for earlier depositing of payroll funds), which is offset by small operational savings in check issuance and postage costs and significant intangible savings through increased worker productivity.

For employees, direct deposit offers greater convenience, provides earlier access to their net pay and eliminates the need to make special arrangements for handling checks when absent from work. For financial institutions the benefits from providing lead bank services are such that few lead banks charge separately for handling direct deposit programs. In fact, lead banks have even been know to pay an organization a yearly fee for the privilege of providing lead bank services.

It is anticipated that future rapid growth in electronic banking and the escalating costs of processing paper checks will make direct deposit programs almost mandatory. A payroll system designed for use between 1984 and 1990 without direct deposit capabilities will likely have a serious deficiency.

Recommendations: (1) Design and develop a direct deposit payroll program for all employees and implement the program with completion of the new personnel/payroll systems. (2) Use the RFP bid procurement process for initial selection of a financial institution to provide lead bank services. Explore the possibilities of the lead bank paying MCPS an annual fee and tightly negotiate the settlement (payment) schedule with the lead bank. (3) Consider the possibilities of a mandatory direct deposit program for all employees or at least for all new employees.

Division of Payroll Operations (Chapter 10)

The Division of Payroll staff totals 22 permanent positions. The fiscal year 1982 division budget totals approximately $440,000, including $21,000 for staff overtime. Adjusted for prior use of temporary employees, division personnel have increased two positions, or about ten percent, in the past five years. The level of staffing and the reliance on overtime contrasts sharply with payroll operations of four neighboring county school systems. MCPS staff utilization, as measured by the ratio of employees paid to payroll staff ranges from 49 percent to 58 percent of the working levels of the four comparison school systems. Although direct comparisons across counties is difficult due to the variability of respective payroll operations, the existing disparity suggests significant inefficiencies in MCPS payroll operations.

The efficient utilization of payroll staff is seriously constrained by a payroll system whose design is inefficient and lacking in adequate

technological support. A revealing distinction between MCPS and the comparison counties may lie in the age of their respective computerized payroll systems. Baltimore, Anne Arundel and Fairfax counties are functioning with payroll systems designed in 1980. The basic design of the MCPS payroll system utilizes procedures developed over a decade ago.

Payroll verification philosophy overemphasizes the need for divisional verification of externally generated data. Alternate strategies for assuring the integrity of information which acknowledge total "system" verification efforts, which are tempered by the realities of error probability and which consider the source of errors, would avoid the wasteful absorption of staff resources attending current divisional practice.

Introducing automated payroll records retention and retrieval systems, reducing microfilming efforts and eliminating duplications between personnel and payroll filing systems would afford further improvements in staff productivity.

Comments made during private interviews with payroll employees suggest a low state of employee morale, stemming in large measure from unpleasant physical surroundings, a perceived lack of administrative support and the reoccurring problem of handling employee complaints.

The study considered the appropriateness of divisional status of payroll operations and whether administrative effectiveness would benefit from combining payroll and Division of Accounting operations. A final determination as to the advisability of recommending a merger of payroll and accounting operations, or some other alternative structure affecting the Division of Payroll, will be examined in the MORE Study of Accounting and Financial Services.

Recommendations: (1) The design of the new payroll system should acknowledge in its options analysis the opportunity to realize a reduction in payroll operating costs and an improvement in staff productivity. (2) The division's verification and control philosophy should be changed to acknowledge total "systems" verification efforts, should be tempered by the realities of error probability and should consider the source of potential errors. (3) Specifications of the new payroll system should provide on-line automated capabilities for the retention and retrieval of historical payroll information. (4) The periodic microfilming of current employee deduction authorization forms and the retention of nonessential personnel action notices in employee payroll files should be discontinued. (5) Consideration should be given to consolidating personnel and payroll employee filing systems. (6) Improve the physical appearance of the payroll office and provide a conference area for MCPS employees to discuss personal matters with payroll staff. Provide payroll employees with an in-service program to assist them in handling employee inquiries and complaints. (7) Assess the current divisional status of both Payroll and Accounting as part of the MORE Study of Accounting and Financial Services.

STRATEGY FOR IMPLEMENTATION OF STUDY RECOMMENDATIONS AND SUMMARY OF COST SAVINGS (CHAPTER 11)

The Task Force on Long Range Planning for Future Use of Computer Technology has proposed development of a human resources management information system, which includes replacement of current personnel and payroll systems. Developmental efforts for replacement systems are scheduled to begin in fiscal 1983, with implementation of the new systems in fiscal 1986. The planned replacement of payroll processing programs raises a question about the timing for taking action on the recommendations of this study, particularly with respect to recommendations whose implementation necessitates major payroll program modifications.

There are recommendations made in this study which can be implemented now without reference to the replacement of payroll computer programs. Recommendations which fall into this category generally concern clerical functions and responsibilities which are not associated with payroll computer programs.

There is a second category of recommendations whose implementation requires payroll program modifications, and thus raises a question of timing. Because of the historic complexity and cost associated with modifying current payroll computer programs, most recommendations in this second category can be implemented more smoothly, at no additional cost by inclusion in the design for the replacement payroll system rather than by modifying current payroll programs.

Recommendations Which Should Be Implemented Immediately

Recommendations Having No Specific Costs or Savings Implications

The following recommendations involve costs or savings which are not measurable in monetary terms or which are not subject to reasonable monetary measurement. None are expected to entail significant costs of implementation.

- Implement MORE Data Processing study recommendations for improved password procedures and software security. (Chapter 3)
- Round manually calculated leave adjustments to no more than one or two decimal places. (Chapter 5)
- Establish a committee to develop methods for improving the effectiveness of policies and procedures for approving disability leave and handling workman's compensation cases. (Chapter 5)
- Provide regular information notices and assistance to aid employees in making correct income tax withholding declarations. (Chapter 8)

- o Discontinue the microfilming of employee deduction authorizations and the filing of nonessential personnel action notices (Chapter 10)
- o Improve the physical environment in the payroll office and provide space for holding private conferences. (Chapter 10)
- o Provide an in-service program to assist payroll employees in handling employee inquiries and complaints. (Chapter 10)
- o Reduce the volume of phone inquiries directed to payroll employees. (Chapter 10)

Recommendations Resulting in Specific Costs or Savings

Recommendation	Savings (Costs) in Staff Years	Savings (Costs) in Dollars	Other (Costs)
Implement payroll supervisory review of manually computed leave and salary adjustments. (Chapter 3)	(.25)	($ 5,000)	-
Improve efficiency of daily payroll control procedures. (Chapter 4)	1.2	19,000	-
Conform supported projects employee salary authorization procedures with administrative policy. (Chapter 4)	.3	5,000	-
Eliminate redundant attendance voucher validation checks by payroll clerks. (Chapter 6)	.7	16,000	-
Reassign from the Division of Payroll to reporting units responsibility for taking attendance batch control totals. (Chapter 6)	.3	5,000	-
Reassign responsibility for summarizing portions of the temporary, part-time payroll from the Division of Payroll to reporting units. (Chapter 6)	.5	9,000	-
Reduce the volume of attendance voucher corrections by revising the timetable for reporting unit submission of attendance documents. (Chapter 8)	.5	10,000	-
Establish tax withholdings on extracurricular activities payments based on the application of a flat 20 percent rate. (Chapter 8)	-	-	(1,000)
Annualized estimated net savings (costs)	3.25	$59,000	$(1,000)
Total Net Savings			$58,000

The foregoing are recommendations which should be implemented immediately that result in specific costs or savings. Immediate implementation of the recommendations is feasible and will interface smoothly later with a new payroll system.

In the aggregate, implementation of these recommendations will generate net savings of $58,000, including a reduction in Division of Payroll clerical staff of about three positions. These savings are achievable without waiting for new personnel and payroll systems.

Recommendations Which Should Be Incorporated Into Design of the Replacement Payroll System

Recommendations Having No Specific Costs or Savings Implications

The following recommendations involve savings which are not measureable in monetary terms or which are not subject to reasonable monetary measurement. The costs of implementation are assumed to be absorbed in the estimated cost of the replacement payroll system.

- Expand automated controls over extracurricular activities payments to include manual adjustments to payments. (Chapter 3)
- Provide the capability to compensate employees at more than one salary rate and to distribute salary payments to more than one budget account. (Chapter 4)
- Provide the capability to process corrective personnel actions during attendance processing when personnel files are otherwise frozen. (Chapter 4)
- Incorporate all leave accounting information into the Personnel Master File and consolidate employee recordkeeping, including leave benefits accounting, into one system. (Chapter 5)
- Fully automate the leave accounting function. (Chapter 5)
- Standardize leave and attendance reporting by all employees to an hourly basis. (Chapter 5)
- Amend the basis on which leave balances are presented on employee paycheck stubs. (Chapter 5)
- Replace use of permanent status codes with years experience information fields for determining supporting services eligibility for annual leave benefit increments. (Chapter 5)
- Define reporting locations as the appropriate level for batch controlling attendance data. (Chapter 6)

- o Reevaluate administrative and/or Board of Education policies which significantly impact the complexity of payroll procedures. (Chapter 7)

- o Incorporate compensation for personal services to independent school activities into employees' regular paychecks and provide a system of reimbursement to MCPS by school Independent Activity Funds. (Chapter 8)

- o Consider the possibilities for consolidating Personnel and Payroll employee records filing programs (Chapter 10)

Recommendations Resulting in Specific Savings

The following recommendations result in specific savings and should be incorporated in the design of the replacement payroll system. The recommendations included in this section require basic revisions to current payroll computer programs, and several, as indicated in their respective chapters, will require enabling revisions to personnel programs as well. These recommendations should direct and guide the new system development effort.

As a package, implementation of the recommendations in this section will, upon installation of a new payroll system in fiscal 1986, generate (in current dollars) annual savings of about $529,000, including fringe benefits associated with salary costs. Installation of the new personnel system will generate an additional savings to the Division of Payroll of .75 person years or $13,000. Once these recommendations are implemented and the new personnel and payroll systems are operational, Division of Payroll staffing should be reduced by an additional seven positions and the need for staff overtime eliminated, with a corresponding recoverable savings, including fringe benefits, of about $146,000. These savings are in addition to the savings of about three positions in the Division of Payroll, or $59,000 overall, achievable through the recommendations which can be implemented immediately.

Reductions in computer attendance processing time will annually make available for other use about 537 hours computer time, with an equivalent opportunity cost savings of $336,000. Implementation of a direct deposit program provides other opportunity cost savings of $60,000. Though the total $396,000 in opportunity cost savings does not translate into actual line item budget reductions, the amount does constitute a tangible benefit to MCPS.

The aggregate estimated cost savings of $529,000 will return to MCPS the $326,000 investment in a new payroll system in approximately 8 months, which more than meets the criterion in the MORE Data Processing report that new systems development should be undertaken if payback is less than three years.

RECOMMENDATIONS RESULTING IN SPECIFIC SAVINGS WHICH SHOULD BE INCORPORATED INTO DESIGN OF THE REPLACEMENT PAYROLL SYSTEM

Recommendation	Recoverable Savings		Opportunity Cost Savings			
	Staff Years	Staff Dollars	Computer Hours	Computer Dollars	Other Savings	Total Savings
Automate the attendance voucher corrections process. (Chapter 8)	.3	$ 6,000	-	$ -	$ -	$ 6,000
Eliminate the need for a special fiscal year-end cutoff payroll. (Chapter 8)	.2	3,000	32	20,000	-	23,000
Redesign the attendance processing cycle. (Chapter 6)	-	-	50	32,000	-	32,000
Consolidate existing payrolls into a two payroll structure. (Chapter 7)	-	-	455	284,000	-	284,000
Implement a voluntary direct deposit program. (Chapter 9)	-	-	-	-	60,000	60,000
Efficiencies achievable in the Division of Payroll from a new payroll system. (Chapter 10)	6.0	124,000	-	-	-	124,000
Annualized estimated savings	6.5	$133,000	537	$336,000	$60,000	$529,000
Estimated cost to develop a new payroll system						$326,000
Investment payback period						8 months

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CHAPTER 1

"MORE" AND THE PAYROLL SYSTEM STUDY

Management Operations Review and Evaluation

In 1979, the Board of Education of the Montgomery County Public Schools (MCPS) directed the superintendent to undertake a series of studies of all units of the school system except school-based instruction. These Management Operations Review and Evaluation (MORE) studies, conducted by or through the Department of Educational Accountability, address the following broad questions:

- Can any functions or services of the unit be eliminated?
- Can any functions or services be provided in a more effective or efficient manner?
- Are there ways to assume additional functions or provide additional services without adding new resources or in an otherwise cost effective manner?
- Are the administrative and financial controls by which the unit is managed adequate?
- Have the objectives of the 1978 administrative reorganization been met? (When the question is applicable)[1]

The delineation of these questions does not mean that MORE studies are restricted to these issues. Rather, many major and subordinate issues may be addressed, and the identification of these issues is one of the important phases of the study.

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[1]The Division of Payroll and the payroll system were not significantly affected by the 1978 reorganization, and the issue is not addressed in this report.

PAYROLL SYSTEM

The study of the payroll system was among the first group of the MORE studies to be scheduled. The selection criteria is based on a weighting system which takes into account the size of a unit's budget, size of the budget by percentage of growth, number of staff members, and a final score on a criterion checklist. The relationship between units (or studies) is also a criterion. A major factor leading to selection of the payroll system for study was that the salary expenditures which flow from the payroll system comprise approximately 77 percent of the total MCPS operating budget.

In addition to the broad questions posed by the MORE studies, this study addresses certain objectives specific to the payroll system, which are[2]

- That employees receive prompt, accurate paychecks, with all deductions computed correctly
- That all aspects of the payroll system are conducted efficiently
- That controls are in place which protect MCPS against fraud or gross error
- That all legal requirements of the federal and state governments and the Board of Education are being met

There is a substantial inter-relationship between the payroll system and personnel and data processing operations. The personnel function and data processing operations are themselves subjects of separate MORE studies. The MORE Study of the Department of Management Information and Computer Services (October, 1980) made recommendations, later developed into a coordinated plan by the Task Force on Long-Range Planning for Future Use of Computer Technology, which include replacement of payroll applications and a long-term plan for implementation of a distributed processing system. The decision to develop a new payroll system has a major impact on the timing for implementation of recommendations of this study, and this issue is addressed separately in Chapter 11 of this report.

The personnel function includes maintenance of employee records containing payroll-related information and authorizations basic to payroll system operations. Records maintenance issues identified in this study as affecting payroll operations, but whose resolution resides within the personnel function have been identified and referred for inclusion in the MORE Study of Personnel Services which has a report scheduled for January 1983.

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[2] See Appendix A for a presentation of payroll study methodology.

CHAPTER 2

GENERAL DESCRIPTION OF THE PAYROLL SYSTEM

Introduction

The payroll system is a process comprised of procedures which assure administrative authorization for personnel actions, maintain employee compensation information, collect employee attendance, and combine attendance data with compensation information for production of employee paychecks. This process transcends organizational boundaries to encompass the actions of a large group of participants.[1] The most visible is, of course, the Division of Payroll. Others, who participate in varying degrees, include school and office timekeepers, the Department of Personnel Services, the Department of Management Information and Computer Services and the Division of Accounting.

Employee Payroll Records

The Personnel Master File (PMF) is the basic repository for information about all MCPS employees. Individual employee records on this computerized file contain a variety of personal information such as address, past employment history, creditable years experience, certification data, position held and work location. The file also contains data relevant to paycheck calculation such as salary, working hours, budget code and all withholding and deduction-related information. The only payroll-related employee information not contained in the PMF is leave benefits. Leave balances are maintained by a system independent of the PMF.

All actions recorded in the PMF are subject to administrative authorization. Professional and supporting services (permanent) positions are subject to budgeted position control. Each instructional level and operating unit is authorized a stated number of positions through the annual budget. The position control function is intended to assure that permanent employees are employed only in positions authorized through the budget and that operating units do not exceed authorized employment levels. This administrative control is effected on an automated basis requiring agreement of personnel actions with position control as a condition for updating employee PMF records. Other mechanisms are used to secure authorization for personnel actions involving nonpermanent positions, such as substitutes and temporary employees.

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[1] See Appendix B for a flowchart overview of the Budget, Personnel and Payroll systems participation in the personnel accounting process.

The payroll system is PMF driven. The PMF specifies those employees subject to compensation and the salary they are authorized to receive. The PMF is accessed during payroll attendance processing to ascertain authorization to pay individuals and to obtain requisite salary computational information needed for the preparation of paychecks.

General maintenance of position control and employee PMF records is the responsibility of the Department of Personnel Services through the Divisions of Staffing and Salary Administration, Certification and Records. In the corporate sense, these tasks reside within the personnel function rather than payroll. However, the payroll system is driven by and, in fact, cannot function without access to personnel information. Thus, in a narrower sense, these tasks are an extension of the payroll system as well.

Leave and Attendance Processing

Leave benefits accrue to permanent employees on the basis of the type of position held and in proportion to the number of days/hours worked. The Division of Payroll accounts for employee leave benefits using an independent recordkeeping process. Payroll clerks separately record changes in leave benefits arising from personnel actions, as there is no direct linkage between leave files and the PMF. Leave usage is captured through attendance processing using automated procedures which include identification and disposition of leave used in excess of available benefits.

The payroll system is divided into six separate payrolls, each of which operates as a distinct independent system. Designated teams of payroll clerks are assigned responsibility for each of these payrolls. The six payrolls and their general characteristics are summarized in Exhibit 2.1.

Full-time professional employees report attendance on an exception basis. All other employees report attendance on a positive basis; that is, they report both hours worked and absences taken. Irrespective of the manner in which professional and supporting services employees report their attendance, the two permanent payrolls both utilize the exception basis for processing reported attendance. This methodology requires that only exceptions to stated work schedules, such as leave usage and overtime, be processed for adjusting anticipated attendance to actual attendance for payment purposes. Employee work schedules on the other payrolls are not similarly defined and require the processing of actual time reported.

Pay dates for the four biweekly payrolls are staggered to even the workload. On alternating Fridays, the two permanent payrolls--professional and supporting services--share common pay dates with the nonpermanent employee payrolls--temporary, part-time and substitute teachers. At least two payrolls are always in process each week under this distribution of pay cycles.

EXHIBIT 2.1

GENERAL CHARACTERISTICS OF THE SIX MCPS PAYROLLS

Payroll	Average Paychecks Per Cycle	Pay Period	Processing Methodology	Processing Time
Professional	6,900	Biweekly	Exception	9 days
Supporting Services	5,500	Biweekly	Exception	9 days
Temporary, Part-time	1,100	Biweekly	Positive	16 days
Substitute Teachers	740	Biweekly	Positive	16 days
Extended Year Employment (EYE)	1,900	Biweekly in summer; periodic remainder of the year	Positive	16 days
Extracurricular Activities (Stipend)	1,375	Triannual	Combined Positive and flat fee	-

Problems Faced by the Payroll System

To read, understand, and interpret this report fairly, it is essential to bear in mind some of the organizational and functional problems faced by the payroll system.

First, the payroll system is not a self-contained organizational unit. The ability of the system to meet effectively its assigned task of providing prompt, accurate paychecks is largely dependent on information provided by sources whose payroll-related functions are incidental to their regular duties. Further, the organizational reporting structure under which payroll operates is widely diffused. The Division of Payroll, operating the core of the payroll system, reports to the Department of Financial Services under the the Office of the Associate Superintendent for Supportive Services. The Divisions of Staffing and Salary Administration, Certification and Records, wearing two hats in maintaining personnel/payroll data, report to the Superintendent's Office through the Department of Personnel Services. Administrators and timekeepers, who authorize and collect employee attendance, cover the full range of responsibility lines of reporting. Lacking a self-contained structure, the payroll system is by nature reactive to its environment. Payroll's reactive position dilutes its ability to either coordinate or adapt efficiently to environmental changes.

Second, the computer software technology under which payroll operates is obsolete. The technical design of payroll applications dates back to the 1960s when processing was performed on an IBM 1401 computer. Modifications to those original programs have been limited primarily to changes required to convert programs to new hardware systems as more advanced computer equipment was acquired. Few actual program enhancements have been made for the benefit of user departments. Over the years, payroll has benefited little from investments MCPS has made in advanced computer technology. Programs have remained constant in the face of ongoing administrative changes, leaving to payroll clerks the responsibility of satisfying changing requirements without the benefit of computerized support.

A number of the issues discussed in this study are either reflective of the difficulty of developing a coordinated response to change within a diffused organizational structure or indicative of the consequences of neglecting to maintain efficient, responsive computer programs.

CHAPTER 3

EVALUATION OF SYSTEM INTEGRITY

Introduction

The findings arising from an audit and evaluation of the system of internal control as applied within the payroll system are summarized in this chapter. The objective of this audit and evaluation was to determine the adequacy of internal control procedures for providing reasonable assurance of the propriety and accuracy of payroll-related activity.

The American Institute of Certified Public Accountants provides the generally accepted definition of internal control. The Statement on Auditing Standards No. 1 defines controls as consisting of two types — administrative controls and accounting controls. These controls are defined as follows:

> "Administrative control includes, but is not limited to, the plan of organization and the procedures and records that are concerned with the decision processes leading to management's authorization of transactions. Such authorization is a management function directly associated with the responsibility for achieving the objectives of the organization and is the starting point for establishing accounting control of transactions.
>
> "Accounting control comprises the plan of organization and the procedures and records that are concerned with the safeguarding of assets and the reliability of financial records and consequently are designed to provide reasonable assurance that:
>
> a. Transactions are executed in accordance with managements' general or specific authorization.
>
> b. Transactions are recorded as necessary (1) to permit preparation of financial statements in conformity with generally accepted accounting principles or any other criteria applicable to such statements and (2) to maintain accountability for such assets.
>
> c. Access to assets is permitted only in accordance with management's authorization.
>
> d. The recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences."[1]

---

[1] Statement on Auditing Standards No. 1, American Institute of Certified Public Accountants, 1973, Sections 320.27 and 320.28.

Controls have been classified into three categories in applying this broad definition to the evaluation of payroll system controls. These categories are defined as follows:

- Authorization procedures are comprised of administrative authorizations and supervisory approvals intended to provide only for processing activity which is in accordance with management's objectives. Authorizations are applied to activity, such as employments, leave reporting and special adjustments, presented for input to the payroll system. Authorization controls also incorporate checks to determine transactions have been subjected to appropriate administrative approval.

- Verification procedures are checks and controls designed to provide reasonable assurance of the accuracy of payroll system transaction processing, including procedures intended to minimize the risks of undetected errors.

- Segregation of responsibilities involves the assignment of tasks and responsibilities in a manner which limits access to records and prevents circumvention of controls. Segregation involves an organizational structure designed to safeguard assets by minimizing the potential for fraud or irregularities.

The following paragraphs summarize the results of an analysis of internal control procedures and their effectiveness within the attendance and pay process.

Findings: Authorization Procedures

An active employee Personnel Master File (PMF) record represents the basic authorization enabling the Division of Payroll to pay an employee for time reported. An employee who does not have a PMF record for the position on which time was reported or whose record is classified inactive is not considered to be authorized for payment.

An initial step in the automated attendance process is a check for an active PMF record. Attendance will be rejected if an employee does not have a PMF record. If an employee has a PMF record which is inactive, attendance will be accepted for processing, but will be "red-flagged" and listed for further follow-up by payroll clerks. In each case the Division of Payroll notifies the Department of Personnel Services of the need to obtain appropriate approvals which authorize the Division of Payroll to pay the employee. Once authorization is received in the Division of Payroll, as evidenced by an active PMF record, the employee will be paid.

Controls intended to assure that only properly authorized individuals are eligible to receive salary payments are in effect. Additionally, controls have been established to determine that salary payments will be made only for work performed within approved work schedule periods.

Internal control procedures specify that employee attendance be reviewed and authorized by a responsible official. Employee time sheets and/or summary attendance vouchers are reviewed by school principals and department directors. Their signatures on attendance documents constitute evidence that time reported has been authorized for payment. The Division of Payroll monitors compliance by school and department officials through this procedure. The Division reviews attendance documents for evidence of approval. Officials are notified when authorizations are missing. If necessary, the Division of Payroll will withhold paychecks from distribution to employees until proper authorization of attendance has been received.

Audit procedures designed to test for compliance with internal control found no exceptions to stated procedures. It appears that employee attendance is subjected to authorization by responsible officials prior to payment of time reported.

Design of the payroll computer programs requires that the Division of Payroll manually compute a variety of adjustments in maintaining employee leave balances and in processing attendance for payment. Payroll clerks either note or are informed of the need for computing an adjustment. They determine the entry to be made, calculate the amount of the adjustment and prepare the transaction for computer processing. These transactions are supported by adequate audit trails; however, they are not subjected to any system of approval or review.

Transactions manually computed by the Division of Payroll are numerous, and especially in the case of leave accounting, constitute a major source of activity within the payroll system. However, these transactions are not subjected to the same level of internal control as required of transactions originating elsewhere in the payroll system. For example, voucher corrections submitted to correct previously reported attendance must be authorized in writing by a school principal or department director. The ensuing adjustment, determined by manual computation, does not receive a similar review for propriety. Consequently, there is no control which assures that the only adjustments processed are those supported by properly authorized actions.

Although certain types of manual adjustments are lengthy and all are subject to some level of human error, computations are not independently reviewed for correctness prior to processing. With the exception of end of year leave balance reviews, reliance for detection of calculation errors lies primarily with employees or account managers . Existing methodology provides some level of reliance that errors may eventually be disclosed. Proper internal control would dictate that imbedded within the payroll process would be a system for detecting errors on a timely basis, that is, prior to submission for processing.

The need for numerous manually computed transactions arises out of deficiences in personnel/payroll computer programs which do not provide for a sufficient level of automation to support the various forms of payroll-related activity. The preferable alternative is to reduce substantially or eliminate the need for manually calculated adjustments by automating these procedures. Implementation of this alternative requires substantial changes to present

computer software. Further discussion of deficiencies in automated support for employee recordkeeping and leave accounting functions are presented elsewhere in this report.

Implications of the Findings

A sound system of internal control requires that activity be properly authorized and that procedures be in place to detect errors on a timely basis. Personnel actions underlying the need for manual adjustments are subject to approval. Lacking is an authorization link assuring that manual adjustments are prepared only in response to authorized activity. This linkage can be provided by assigning to payroll team supervisors the task of reviewing the propriety of manual adjustments, noting that each is supported by an authorized action.

Payroll team supervisors should also review these transactions for clerical accuracy as a part of the approval process. Certain types of transactions entail simple, straightforward computations while others require complex manual calculations. All manual transactions are subject to some level of human error. Thus, the reliability of payroll data depends upon a timely verification of the accuracy of clerical computations. Supervisory check over the accuracy of manual adjustments prior to processing would provide such a timely review.

At present, the volume of manual adjustments is quite large, and will likely remain so until a more highly automated payroll system is developed. Under these conditions, it may not be feasible for payroll team supervisors, during this interim period, to review all activity supported by manual computations. Temporary procedures which address the need for timely error detection, yet recognize the difficulty of applying these procedures to such a large volume of activity would be appropriate. Supervisory review and approval could be applied based on a defined set of criteria which combines a specific review of complex transactions with a cursory review of routine activity.

Findings: Verification Procedures

Verification procedures comprise in the aggregate a group of checks and controls designed to provide reasonable assurance of the accuracy of payroll attendance processing, most importantly including procedures intended to minimize the risk of undetected errors. Existing procedures provide checks over attendance processing, check preparation and payroll accounting.

Division of Payroll procedures require establishment of balancing controls prior to processing attendance data. Batch processing techniques are used for this purpose, with a basic batch defined as a reporting location, except on the temporary, part-time payroll where batching is based upon social security number and employee groups. Once established, these controls are maintained throughout the processing sequence; they segregate and identify regular attendance processing from error identification and correction processing; and they must balance at the end of each processing point as a condition to moving to the next stage in processing.

The attendance process also contains a combination of manual and computer checks intended to detect the existence of errors. Procedures are designed to disclose errors of two types. The first type of error is of a clerical nature. Examples of clerical errors would include mathematical error, attendance reporting errors or keypunch errors. The second type of error arises from noncompliance with time reporting procedures and regulations. Examples include reporting leave in excess of the balance available, submitting time outside regular annual work schedule or reporting time under position characteristics other than as specifically authorized. Except for the substitute teachers payroll, separate procedures exist for reprocessing errors which segregate them from regular attendance processing.

The Division of Payroll reconciles all reports generated each pay period, including payroll withholdings, deduction, emcumbrance and salary distribution. Reconciliations are performed on an aggregate basis. That is, the total per each report is balanced to the respective total of salaries paid or type of deduction taken per the payroll register. In addition, aggregate and individual employee year-to-date balances are verified on a regular basis.

Implications of the Findings

The system of checks and controls over the attendance and pay process (excluding manual adjustments, which findings are discussed above) appears adequate to provide reasonable assurance that errors which may occur during transaction processing will be detected and reentered for correction on a timely basis.

The Division of Payroll corrects errors occurring in processing substitute teacher payroll attendance by changing employee time vouchers so that they reflect the right information. Changing time vouchers to correct mistakes which occur during voucher preparation is an expedient method for correcting errors in the attendance process. This approach, however, conflicts with proper internal control procedures. Changing employee time vouchers constitutes alteration of an original source document and results in a loss of a clear procedural audit trail. As an original source document, employee time vouchers should not be altered. The substitute teacher payroll needs a separate mechanism for reprocessing voucher error corrections which leave intact time documents submitted by employees.

There are automated controls in the extracurricular activities payroll which prevent an activity sponsor from receiving stipend payments in excess of the hours or amount specifically authorized for a given activity. This control extends only to payment computations originating through the regular stipend payment process. The same control does not consider dollar adjustments which may be added to stipend paychecks. Thus, each time payroll clerks prepare a dollar adjustment, they must manually check that an adjusted amount to be paid in a stipend pay period, when added to cumulative payments, does not exceed the amount authorized. If an adjustment would cause excess compensation, payroll clerks reduce the adjustment amount accordingly. This shared responsibility between payroll clerks and computer checks is inefficient and

more prone to error than were the computer checks to be applied to all sources of stipend payments.

Findings: Segregation of Responsibilities

The segregation of responsibilities is an important attribute for the payroll system. It requires an organizational structure which limits access to records and prevents circumvention of controls. When functioning effectively, it serves to safeguard assets by minimizing the potential for fraud or irregularities.

The design of the payroll system allocates responsibilities in a manner intended to provide safeguards through a series of checks and balances.

EXHIBIT 3.1

PAYROLL SYSTEM
ALLOCATION OF RESPONSIBILITIES

Function	Responsibility Resides With
Budget Management	MCPS Administration Account Managers
Employment Records (PMF)	Department of Personnel Services
Attendance Reporting	Reporting Locations
Pay and Leave Processing	Division of Payroll
Computer Processing	Department of Management Information and Computer Services
Paycheck and Accounting Distribution	Division of Payroll Division of Accounting Account Managers

In Exhibit 3.1, payroll system functions are ordered sequentially on the basis of control impact. In descending order, each function provides a check over subsequent functions. In ascending order, each function is reasonably precluded from the capability of performing preceding functions. For example, an employment record and attendance voucher are necessary input to the pay process. The Division of Payroll is responsible for pay processing.

It does not have the authority either to create an employment record or to submit attendance vouchers in the normal course. The Division is checked from performing these functions through the exercise by the Department of Personnel Services and reporting locations of their respective responsibilities.

Security over primary data files is also premised upon segregation of responsibility. Access to data files is generally restricted for transaction processing purposes to units assigned maintenance responsibility through the use of transaction keys. Assigned transaction keys do not wholly preclude access by unauthorized personnel. For this purpose, the system relies heavily upon responsibility units monitoring transaction output listings to prevent irregularities. Transaction keys do provide an audit trail for linking transactions back to original documents.

Security of payroll production tapes is performed by the Division of Data Processing Operations through the monitoring of tape numbers. LIBRARIAN, a software security storage package, is used to protect payroll software from unauthorized changes.

Overall, security relies heavily on the segregation of responsibilities and transaction audit trails. As such, emphasis is placed upon the detection of irregularities. Security procedures are moderately preventive in precluding unauthorized access. Remote terminal (CRT) passwords and input transaction keys specify access to payroll-related data and thus limit update capability. They do not, however, preclude unauthorized access. Personnel within the payroll cycle have the knowledge and ability, should they so choose, to manipulate payroll files. CRT passwords or transaction audit trails would disclose attempts at data manipulation for subsequent interpretation by other personnel as improper transactions.

Implications of the Findings

Access to payroll-related data accrues according to functional responsibility. However, CRT password procedures and transaction keys are insufficiently effective in precluding irregularities. This deficiency is offset by established transaction audit trails and information reports. Taken as a whole, the system of security is workable; and the audit uncovered nothing to indicate otherwise.

The MORE study of data processing operations made recommendations directed toward strengthening password procedures and software security. Implementation of these recommendations would enhance the level of security over payroll-related data, raising the level of protection against sophisticated schemes of fraud or irregularities.

Recommendations

- Manually computed leave and salary transactions prepared within the Division of Payroll should be made subject to supervisory review for initial authorization and for computational accuracy. Until actions can be taken at the source to minimize the volume of manual transactions, supervisory review and approval should be applied based on a defined set of criteria which combines a specific review of complex transactions with a cursory review of routine activity.

- Substitute teacher attendance vouchers should not be altered as the method for correcting processing errors. There should be a separate mechanism through which error corrections can be reprocessed which leave original documents intact.

- Automated controls in the extracurricular activities payroll should be expanded for application against all sources of stipend payments, which includes manual adjustments to payments as well as through the regular payment process.

- The recommendations of the MORE Study of Data Processing regarding password procedures and software security should be implemented in full.[2]

Other chapters of this report which cover employee recordkeeping, leave accounting and attendance voucher corrections present recommendations which address system modifications, the results of which would reduce the volume of manually prepared transactions by the Division of Payroll. At such lower levels, the burden of supervisory review and approval will itself be sharply reduced.

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[2]Funds for acquisition of a software security package were requested, though later deleted, during preparation of the fiscal 1983 Superintendent's Operating Budget Request.

CHAPTER 4

EMPLOYEE PAYROLL RECORDS

Introduction

This chapter looks at information systems used to maintain employee payroll records and addresses the implications for the payroll system of the adequacy of these systems. In large part, this review centers on the Personnel Master File (PMF) and its relationship to the payroll system. The Division of Payroll expends about four person years (about $60,000), or nearly 20 percent of total staff time, interacting with the PMF. Thus, the level of effectiveness of employee information systems is important to efficient utilization of payroll staff.

Overview

The systems which will be discussed in this chapter do not, per se, fall within the payroll sytem, but are larger functions which serve purposes more extensive than payroll alone. The payroll system is one of several functions, including budget and personnel, which rely on the employee information provided. Thus, while these systems must be included in this presentation, the focus of analysis and thrust of recommendations are directed not so much at attributes of these functions as at the implications such attributes have on payroll. The broader look at these functions will be a part of the MORE Study of Personnel Services.

In the following paragraphs a brief overview of employee information systems is presented to provide a general understanding of the setting in which the findings are based.

The Personnel Master File is the primary repository of employee information. The file contains a variety of information used by the Department of Personnel Services and the Division of Insurance and Retirement, as well as the Division of Payroll. Employee recordkeeping is a function which falls within the personnel system. Lead responsibility for maintaining the PMF resides with the Division of Salary Administration, Certification and Records, although portions of PMF information are maintained by other units, including the Division of Payroll. Employee information for which the Division of Payroll is directly responsible include tax withholding, miscellaneous payroll deductions and cumulative year-to-date employee salary payments and withholding balances.

As the basic repository of employee information, the PMF drives the payroll process. The PMF specifies those employees authorized for payment, their salary rate, compensible work schedule, salary account distribution, and paycheck distribution. Attendance and pay processing makes access to and is in turn controlled by the PMF.

The PMF itself is subject to position control. The function of position control is to assure adhererence with Board of Education budget authorizations. Professional and supporting services positions are subject to budget authorization. Position control verifies that each employee in these two groups holds an authorized position and that there are no positions which exceed budget authorization levels. The centerpiece in this function is the Position Control File administered by the Division of Staffing. The Position Control File edits personnel actions prior to their being recorded in the PMF to test for compliance with budget authority. This edit process determines that a valid position exists and checks that position characteristics as reflected in the PMF conform with what is recorded in the Position Control File. If position control number, work schedule, location and budget code are in agreement, the personnel action will be recorded to an employee's PMF record. If a position is not vacant, if position characteristics do not agree, or if an authorized position does not exist in the Position Control File, then the personnel action is considered unauthorized and rejected from recording to the PMF.

The payroll system, with its reliance on the PMF and position control, is impacted by matters affecting the level of efficiency and effectiveness of these information systems.

Findings: Position Control

A primary budgetary building tool and common unit of measure is authorized positions. Each unit and program is authorized a stated number of professional and supporting services positions. Given the role of authorized positions in budget development, position control follows as an appropriate mechanism for administering compliance with budget authority. The Position Control File operates as this mechanism. Position control performs this function acting as an authorization source for the PMF, which in turn represents authority for the payroll system in making salary and wage payments.

There are issues affecting position control which impair the effectiveness of the authorization linkage. Potentially the most significant of these issues concerns the lack of interaction between the budgetary process and position control. Position control functions independent of the budget process on which it is purportedly based. In fact, the respective information systems are incompatible. The opportunity of each system to support the needs of the other is lost. The budget process completely ignores the position control system and conversely, position control neither facilitates nor receives direct benefits from administrative efforts invested in the budget. Lacking access to budget files, position control is reactive rather than prescriptive, depending as it does on timely managerial initiative to transmit position and personnel changes.

Professional and supporting services PMF transactions are subject to editing by position control. An employee PMF record cannot be created unless there exists an authorized vacant position on the Position Control File. Job characteristics such as location, budget code and units scheduled, cannot be changed on an existing PMF record until after the Position Control File has been changed. Under certain circumstances involving modifications of supporting services positions, updates to position control are automatically recorded to employee PMF records, as well. Other actions require separate entries to each respective file.

The combination of position control edit procedures and the disconnected manner of transmiting budgeted position actions exposes the employee recordkeeping process to delays in maintaining up-to-date PMF information. Position control displays characteristics which create time lags and susceptibility to error which are dysfunctional to records maintenance needs. The following examples present some of the dysfunctional characteristics of position control.

- Occasionally position control edit procedures will selectively accept a portion of a PMF transaction which otherwise should have been rejected in the entirety, when an attempt is made to place an employee in a non-vacant position.

- Transaction edit reports will print incorrect transaction status messages, for example, stating that an attempted update was rejected when, in fact, an individual was recorded in the Position Control File.

- The relationship between position control and the PMF occasionally breaks down, allowing a personnel action to be recorded in one file, but not the other, when an action should have been accepted or rejected in the entirety in both files.

The existence of such characteristics is problematic not only because of delays which ensue, but also because the uncertainty of results questions the reliability of records maintenance systems.

Implications of the Findings

Position control, per se, does not fall within the payroll system. A general review of this function was made since position control does impact timely maintenance of payroll-related PMF information. This limited review does not form a basis for specific recommendations. However, the general findings support recommendations contained in the Report of the Task Force on Long-Range Planning for Future Use of Computer Technology. That report has identified position control as one of the systems for replacement and inclusion in a Human Resources Management Information data base and proposes to integrate budget information with personnel data. Advancements in employee records maintenance will be sustained only if accompanied by improvement in the efficiency and coordination of budgeted position control.

Findings: Personnel Master File

As the primary repository of employee payroll-related information, the Personnel Master File (PMF) directs the payroll process. The PMF represents the source for authorization to pay and contains all information, except leave balances, required to convert employee attendance into a paycheck. Only employees with active PMF records are authorized to receive salary payments. An employee will not be compensated for time worked unless or until an active PMF record has been created. The amount of compensation is determined by the PMF. The payroll process relies on the PMF to specify employee rates of pay, compensable hours, budget account distribution, and salary withholding and deduction information.

It is important for payroll processing purposes that the PMF contain up-to-date and accurate employee payroll-related information. A lack of timeliness or accuracy in employee records maintenance impacts on the ability of the payroll process to make timely and accurate salary payments. A review of the PMF operations was made to ascertain the implications such operations have upon the payroll function.

A limited test of the accuracy of PMF payroll-related information was made based upon a random sample of employee records. Data subjected to testing included pay rates, position characteristics, employee withholdings and deductions, and leave benefit determinants. The purpose of the test was to determine that this information was supported by and in agreement with compensation schedules and administrative and employee authorizations. No exceptions were noted in the sample, leading to a conclusion that information contained in the PMF is reasonably accurate.

The review of PMF operations did disclose other matters with implications concerning the timeliness of employee records maintenance, which are discussed in the following paragraphs.

PMF Data Entry Procedures

Entry of employee information into the PMF occurs through any one of three methods: remote terminals (CRT's), keypunched data entry, or concurrently with update of the Position Control File. Remote terminals are used to enter actions which modify existing PMF records. Keypunching is the medium used for creating new employee PMF records. Personnel actions which modify a supporting services employee's biweekly work schedule, budget code or location are automatically recorded in that employee's PMF record at the time the action is reflected in the Position Control File.

There is no direct on-line data entry capability available for regular transaction processing. Personnel actions are entered daily onto transaction tapes for overnight updating of the PMF. Transaction reports are provided the following day for use in verifying the accuracy of the previous day's entries.

The lack of direct on-line data entry affects the timeliness with which personnel actions can be reflected in employee PMF records. The significance of this lack of on-line capability lies in the identification and reprocessing of edit and keypunch errors. With PMF updates consigned to overnight processing, transaction errors and rejects are not identified and corrected until the day/night following initial data entry. At least one day elapses before an employee's record is properly updated, with a minimum two days elapsed when corrections are necessary.

Responsibility for maintenance of certain PMF information is segmented. Employee tax withholding and miscellaneous deductions information is processed by the Division of Payroll. The Division of Insurance and Retirement handles data concerning employee insurance and retirement benefits. Changes in this information are transmitted by employees directly to these divisions for daily updating of PMF records. This same division of responsibility exists when creating PMF records for new employees. The Department of Personnel Services collects requisite employment papers from new employees, prepares the basic PMF record and forwards to the Divisions of Payroll and of Insurance and Retirement the information for inclusion in their respective segments in employee records. However, before Payroll and Insurance and Retirement can submit this information for processing, Salary Administration must have already created the basic employee PMF record. Hence, a minimum of two days elapse before a new employee's PMF record is fully created. Should any difficulties arise in processing, the time lapse increases to three or more days.

This time lag in creating new employee records arises from segmentation of responsibility for employee records maintenance. Segmentation has no impact on current employee records modification and is consistent with respective divisional interests. Prior existence of a PMF record allows changes to be processed as received. For new employees, deductions and benefits information cannot be entered until after Salary Administration has initially created an employee record. The delay in creating new employee records can be avoided by eliminating segmentation in this one instance. The package of employment documents which the Department of Personnel Services collects includes deductions and benefits declarations. Were Salary Administration to process this information along with all other new employment data, rather than forwarding it to the Divisions of Payroll and of Insurance and Retirement, an employee's PMF record would be created in one rather than two days.

Cumbersome PMF Maintenance Characteristics

There are a number of characteristics inherent in PMF computer software programs which complicate and impede the ability of the Division of Salary Administration, Certification and Records to provide timely maintenance of employee records. Following are a few examples of personnel actions which require cumbersome processing.

- Only one future effective date transaction may be recorded in the PMF. For example, Salary Administration records in the PMF a salary change to become effective September 1. If in the interim they receive a change in units scheduled to be effective August 15, they cannot process this action as the future field is already in use. In order to

process the change in units scheduled, Salary Administration must on day 1 clear out the September 1 transaction and then on day 2 they can record the units scheduled for future transaction. After August 15, the salary change must then be reentered.

- The transfer of an employee from one payroll to another requires a minimum two days to process. On the first day, the employee's record on the old payroll is terminated. On the second day, a record is created on the new payroll in a manner similar to a new employment. PMF edit procedures do not provide a capability to reflect such a transfer in one step.

- The PMF automatically rejects an attempt by Salary Administration to process in a single step a transfer of a classroom teacher (position class 1001) to a resource teacher position (position class 1054). Knowing the action will be rejected by the computer, Salary Administration processes the transfer. The employee's record will not move to the new position, but their record will reflect the new job title of resource teacher. With that small change accomplished, Salary Administration can reenter the same transfer action on the following day, which this time will be accepted and result in correct adjustment of the employee's PMF record and the position control file.

- On the supporting services payroll only, Salary Administration cannot effect in a single action a change in position title if the wage rate of the preceding position included a salary adjustment (i.e., off-scale, shift differential, etc.). Such personnel actions require two-part processing. On the first day the employee's position title is changed; on the second day the new wage rate is entered.

- Salary Administration cannot rescind a recorded future transaction if it includes a position class change. PMF mechanisms reject attempts to reverse position class number. One of two options are available when this occurs. The incorrect position class number can be left in the PMF, where it will roll into the employee's record when the effective date arrives. With this option, there is a high probability the incorrect position class will cause the employee's attendance to be rejected during processing and result in delayed salary payment. The other option is to enlist the aid of the Division of Systems Development to force the PMF to accept rescission of the transaction, an action which under other circumstances would be considered a violation of computer file security. This characteristic is particularly dysfunctional as it is an everyday occurrence during the summer when there is a high volume of teacher reassignments.

These examples are by no means a complete catalog of dysfunctional PMF characteristics. With the exception of the last example, these characteristics individually do not necessarily surface frequently, yet in the aggregate they reflect an environment in conflict with the need for timely maintenance of employee records.

Administrative Responsiveness

Administrative responsiveness is a prerequisite for timely maintenance of employee records. Managers must be cognizant of, and willing to comply with, the need for timely transmission of personnel actions. From the point of view of the payroll process, any lack of administrative responsiveness translates into difficulties in providing accurate and timely employee paychecks.

The consequences of administrators who delay or fail to transmit personnel actions on a timely basis are made visible through "no pays" and retroactive payroll adjustments. The term "no pays" identifies employees whose attendance in full or in part is rejected for payment either because of the lack of an authorizing employee record or because of out-dated PMF information. For example, a manager may employ an individual and neglect to forward employment information to the Department of Personnel Services in sufficient time for an employment record to be created. When the employee's attendance is submitted it will be rejected for lack of an authorized PMF record. Retroactive payroll adjustments arise when a personnel action is received and processed after the date the action was to become effective. A retroactive adjustment would arise should an administrator fail to notify the Department of Personnel Services of an employee promotion involving a higher level of pay. Late notification requires that the Division of Payroll recalculate salary payments forward from the effective date to determine additional compensation payable at the higher rate of pay. In both instances, Personnel and Payroll resources are consumed unnecessarily, accommodating delinquent administrative actions. Inconsistent responsiveness of administrators is not the sole nor the primary source of no pays and retroactive adjustments, but it is a contributing factor.

Personnel procedures specify that the Department of Personnel Services assign starting dates for new employees. The purpose of this procedure is to assign starting dates on a basis which provides reasonable assurance of sufficient time to gather and process employee records. A review of no pay records found instances where employees worked prior to assigned starting dates or before receipt of notification in the Division of Staffing, suggesting that managers be reminded of prescribed procedures. It would also be helpful to provide managers with a timetable stating the minimum lead times they should allow when initiating various personnel actions. The timetable would reflect the minimum period of advance notice required to assure timely updating of employee records.

Implications of the Findings

The payroll system looks to the Personnel Master File to provide proper authorization and the information necessary to convert attendance into a salary payment. Timeliness in PMF records maintenance is a critical requirement for smooth and accurate payroll processing. Out-of-date or missing information can cause payroll processing errors, affecting an employee's pay, leave benefits or subsequent accounting for salary distribution.

The findings suggest that payroll-related information contained in the PMF is accurate, but that the process of getting that information into the PMF is inefficient and problematic. Overnight transaction processing and the

practice of segmentizing creation of new employee records contribute to delays in recording personnel actions. Data entry which could otherwise be accomplished in a day extend to two or more days to complete. Dysfunctional characteristics of PMF computer software programs make data entry difficult and introduce uncertainty of results. Software problems force multi-step processing of single actions. Similar actions accepted for recording one day may be rejected by computer edits the next day. These findings suggest that the priority given development of a new human resources information system in the Report of the Task Force on Long-Range Planning for Future Use of Computer Technology is appropriate. Improvements in employee records maintenance forms a necessary foundation for initiating improvements in procedural efficiency within the payroll system.

Addressing inconsistencies in administrative responsiveness is more problematic, from the viewpoint of the payroll process, as it is difficult to monitor compliance without advance knowledge of pending actions. Increasing awareness of system needs and providing a timetable for minimum advance notification of personnel actions may improve overall responsiveness. Requiring written documentation from managers to support making exceptions to stated timetables and including responsiveness to personnel needs in annual evaluations of managerial effectiveness may serve to heighten administrator awareness. However, the perspective of the payroll study is too narrow to provide an indepth analysis of this issue. A full analysis of the interaction between participants involved with this issue may find that an equal or greater responsibility lies with personnel procedures or other matters outside the control of administrators. A wider set of implications and potential recommendations will be more appropriately afforded by inclusion of this issue in the MORE Study of Personnel Services. It would be inappropriate in this study to make specific recommendations concerning matters which are wholly outside the control of the payroll system.

Findings: Limitations Imposed by the Payroll System

While there are limitations originating outside the payroll system which impact on the timeliness of employee information used by payroll, there are conversely, two limitations originating within payroll which also impact employee records maintenance. The first limitation concerns assignment of the date personnel actions are to be made effective. The second limitation affects the period during which personnel actions can be recorded in the PMF.

Transaction Effective Dates

A desired objective arising out of accommodation of payroll processing limitations is the assignment wherever possible of the first day of a pay period as the effective date for personnel actions. This objective applies generally to the effective dates of salary changes and employment starting dates. It is not an objective applied to personnel changes such as promotions or transfers where the need for flexibility in personnel management is important. However, when actions are made effective on a day other than the first day of a pay period, PMF updating mechanisms treat the action for payroll purposes as not becoming effective until the following pay period.

The need to delay recognition of actions effective other than on the first day of the pay period arises because payroll processing programs lack the capacity in a given pay period to compensate employees based upon more than one rate of pay or to distribute salary payments to more than one budget account. A conflict thus arises between the need for flexibility in personnel management and the inability of payroll computer programs to recognize that need. Resolution of this conflict is accomplished by imposing upon the Division of Payroll a manually supported process of treating in-period personnel actions on a retroactive basis. Employee compensation and budget account distribution is determined on the basis of conditions existing as of the beginning of the pay period. In the following pay period, payroll clerks recalculate compensation or account distribution on the new basis retroactive to the date the action became effective. Retroactive adjustments affecting compensation are included in an employee's next paycheck; those affecting account distribution are adjusted by journal voucher.

Frozen Personnel Master File

Each pay period a portion of the PMF covering those employees who are about to be paid is "frozen" until after completion of the attendance process. During this freeze period the PMF updating mechanism prevents recording any transactions affecting employee salary-related information if it is to be effective within the pay period for which employee attendance is about to be processed. Data elements subject to the freeze include pay rate, units scheduled, budget account code, biweekly gross pay and whether pay is based on annual or hourly rates. The period during which records are frozen begins the last Thursday of the pay period and continues until Friday of the following week, in effect, encompassing the period during which attendance is processed.

The purpose of freezing, or holding constant, salary-related information is to facilitate the Division of Payroll's ability to control the payment process. Since attendance processing physically occurs during the pay period following the period for which payment is being made, a mechanism is necessary to prevent recording and hence, incorrectly compensating employees, based upon salary data which does not pertain to the period of payment. Freezing the PMF satisfies this need.

Freezing the PMF also prevents recording salary changes related to the pay period for which payment is being made, the absence of which can cause incorrect compensation or budget salary distribution. For example, the Division of Salary Administration, Certification and Records may receive notice of an increase, effective the beginning of the pay period, in the hours an employee is scheduled to work. If the notification is received too late to process prior to the freeze, Salary Administration must wait until the following pay period when the PMF is "unfrozen" to record the increase. In the meantime, the employee works and reports attendance based on the new increased hours. When the attendance process compares reported hours to the PMF for authorization to pay, a mismatch in work schedule will occur, causing, in this example, a rejection of the additional hours for lack of authorization to pay. At this point, the employee is included on the no pay and cutback list given to Salary Administration for problem identification and resolution. The problem can be identified by reference to the unprocessed notification, but resolution is prevented by a frozen PMF. The Division of

Payroll has several options available to correct salary payments or budget distribution when the above or similar situations arise. Each option, however, requires clerical intervention and manual correction. Depending upon the nature of the problem and clerical workloads, final resolution, including corrected employee compensation, may not be accomplished until a future pay period.

Implications of the Findings

The inability of payroll computer programs to compute salary payments at more than one rate or to make multiple accounting distribution impacts Division of Payroll clerical resources and can delay proper compensation of employees and correct budget account distribution. Similar effects result when freezing the PMF prevents inclusion of last minute personnel actions or corrections in the current pay period computations.

The preceding findings addressed the need for timeliness in the maintenance of employee records. Were all personnel actions to occur on a basis which allowed for timely processing, there would be no need to process last minute personnel actions or corrections and hence no conflict with the current practice of freezing the PMF. However, given an assumption that positive remedies resulting from the MORE study of Personnel Services will reduce, but will not alleviate the need for a capability to process special actions against the frozen PMF, then revision of current practice remains relevant.

In both instances, increasing the flexibility of the payroll system would help to improve the accuracy of employee salary payments and resultant accounting distribution, and reduce clerical resources in the Division of Payroll devoted to processing retroactive adjustments.

Findings: Noncurrent Budget Account Codes

An integral part of each employee's PMF record is the budget account number to which salary expenditures are to be accumulated in accounting records. An account number must be specified for an employment record to be created; and the specified number must be valid, that is, authorized through the fiscal budgetary process. Account numbers have an associated termination date, usually June 30, after which the accounting system will reject attempts at further recording of transactions. The majority of accounts are automatically renewed each year as a normal part of the budgetary process. This same process creates a need to designate new account numbers and discontinue others. For example, a departmental reorganization can result in the elimination of accounts. When this occurs, action must be taken for employees affected by the reorganization to adjust position control and their PMF record to replace old now invalid budget accounts with current budget account designations. Because there is no direct line of communication between

budget/accounting information and personnel information, account managers, after completing the budgetary process, must take separate action to initiate account coding changes in personnel records. Failure to do so will not affect compensation to employees, but it will prevent a salary payment from being recorded as a disbursement for lack of a valid account code.

The need to reauthorize budget account codes is especially problematic with projects supported by noncounty funds. Each project has an associated fiscal year which necessitates segregation of funding and expenditures by project year. Projects must be reauthorized annually and budget account codes changed to segregate activity. For reasons both controllable and uncontrollable the process of reauthorizing and recording new project numbers in employee records is a recurring annual problem. The problem is controllable if the delay in obtaining valid project numbers arises out of ineffectual project management. Delays caused by granting agencies are more problematic because they are less subject to MCPS control. As presently designed, employees can be compensated, although their records contain an invalid budget account. However, because an account is not authorized, the salary expenditure will not be recorded in accounting records. Such payments will remain unrecorded until a valid account number is designated. During the period from July, 1981 through November, 1981, approximately $478,000 of salary payments went unrecorded for varying lengths of time because employee records did not contain valid account codes. In this year, as in prior years, additional labor was expended investigating and eventually reprocessing each payment for posting to accounting records.

Implications of the Findings

The problems resulting from the existence of noncurrent budget accounts impact the payroll system. The Division of Payroll is left the responsibility for reprocessing salary distribution rejections. The implications of this issue are found outside the payroll system and concern the adequacy of the informational linkage between budget and personnel systems, the responsiveness of account managers and the logistics of working with external funding agencies. The implications associated with budget/personnel information and managerial responsiveness are similar to findings presented elsewhere in this chapter. The issues concerning supported projects are more specialized and deserve further comment.

Firm commitments from granting agencies are required before a project can be authorized. The nature of events periodically cause uncertainty as to funding which may extend up to or carry over into the period a project is to begin. A question arises under such circumstances concerning continued compensation to employees scheduled to work on pending projects. On the one hand, payments made prior to project authorization are technically illegal which, were project funds denied, would have to be repaid out of county funds. On the other hand, is the question of whether projects should be halted or continued in anticipation of funding approval. Current policy requires project approval prior to authorizing expenditures, but allows the granting of an exemption in special circumstances. However, in practice procedures implementing this policy are internally contradictory. Personnel recordkeeping functions on a negative response basis. That is, project employees will be compensated in due course unless notification is received from project managers terminating

active employment. Accounting procedures function on the basis that any payment made on an unauthorized project is invalid and will not be recognized in the accounting records, regardless of whether an administrative exemption exists or not.

From the viewpoint of the payroll system, the problem arising from payments made on invalid project numbers would be reduced by making personnel and accounting procedures conform with administrative policy. On that basis, no payments would be authorized until a project has received formal approval. On those occasions when a special exemption is granted, salary payments would be recorded to accounting records in the same manner afforded any other authorized expenditures.

Findings: Verification of Personnel Actions

Personnel actions are processed daily for inclusion in the Personnel Master File. An integral part of this process are computer produced daily transaction reports for use in verifying that the previous day's transactions were correctly recorded in the PMF. Transaction reports are supplied to the respective divisions who initiated the input. In this way the Divisions of Salary Administration, Certification and Records, Payroll, and Insurance and Retirement can by reference to source documents verify that PMF activity they have initiated was processed correctly. Conversely, transaction reports provide timely notice to these divisions of processing errors requiring correction.

Another product of the PMF verification process is the Personnel Action Notice (PAN). PANs are computer produced documents which provide an audit trail in support of PMF transactions initiated by the Department of Personnel Services. A PAN reflects, for each action, the information in an employee's record before the action and the new information after the PMF update. The PAN constitutes an integral information document for payroll control purposes.

The Division of Payroll maintains aggregate control balances over all salary related information in employee PMF records which are stated on a monetary basis. Control balances are maintained separately for each of the six employee payrolls. Control balances change daily in relation to the recording of personnel actions. Control balances are used by the Division of Payroll to monitor and account for all PMF activity affecting payroll information.

The following control procedures are performed daily for each payroll by assigned payroll teams using computer generated PANs, daily compares, and master pay and deduction reports

- Payroll clerks examine each PAN and verify, to the extent possible, the correctness of the personnel action. For example, salary rates are agreed to salary schedules.

- The daily compare reports list payroll-related transactions recorded in the PMF the previous night. Payroll clerks account for each transaction initiated by the Department of Personnel Services and verify its correctness by reference to a supporting PAN.

- The net effect of the transaction on control balances is calculated and added together with all other transactions to arrive at a total net change in each control balance.

- This net change is added to aggregate control totals from the prior day's master pay and deduction report. The resultant total is compared for agreement with control totals per the current day's master pay and deduction report. Since the two balances should agree, any difference represents a descrepancy which must be investigated and resolved.

- PANs requiring further action by payroll clerks are set aside for later reference. These are PANs whose personnel actions require the Division of Payroll to calculate leave adjustments, retroactive salary adjustments, account distribution adjustments, etc.

The Division of Payroll estimates that approximately two person years (about $32,000) are devoted to the functions of reviewing PANs and balancing daily controls. There are aspects in the application of control procedures which, if modified, would lessen the time given to this function.

Implications of the Findings

The design of the current personnel/payroll/leave accounting functions requires that the Division of Payroll receive and review all PANs, for PANs are a basic source document notifying the Division of Payroll of personnel activity which necessitate action on their part to process corresponding adjustments to employee leave records, to process retroactive salary adjustments, or to take other action consistent with the nature of the PAN. In addition, matching PANs to daily compares provides the Division of Payroll with assurance that changes occurring in their control balances have been authorized. On the other hand, the attempt by payroll clerks to verify the accuracy of Personnel Action Notices is ineffectual without access to original transaction source documents. For example, verifying a change in hourly rate of pay by reference to a salary schedule presupposes grade and step per the PAN is correct. That is a determination which can only be made by comparison to source documents, which is what Salary Administration does when it verifies the correctness of personnel actions it has initiated. The Division of Payroll must review PANs, but the division should leave to Salary Administration the role of verifying the correctness of transactions initiated in the Department of Personnel Services.

The function of accounting for the change in daily control balances would be simplified were the format of daily compares altered to include for each action and in total for the day, the net change arising from transaction processing. Inclusion of this information would eliminate the need for payroll clerks to calculate and account individually for the effect of each change. Computer programs can make such calculations far more efficiently.

Findings: Parallel Employee Personnel Files

The Division of Salary Administration, Certification and Records maintains a card file containing salary and employment history on all professional and supporting services employees. This card file is considered by the division as its primary source for research and verification purposes. Salary cards are manually maintained, parallel with the computerized PMF. Once a year the file is reconciled to the PMF via comparisons of salary cards to annual employee salary information notices. The division keeps the card file because it is considered more up-to-date, provides personnel action history and is easier to use than the PMF. The PMF requires more information to access appropriate records, and the configuration of CRT displayed files is awkward to use.

Implications of the Findings

The existence of separate, but parallel employee personnel files does not affect the payroll system. It is presented in this report as an additional issue emphasizing the need to evaluate the usefulness of the Personnel Master File, as presently designed, as the basic foundation on which the maintenance of employee records relies. The existence of a preferred manual file is an indictment of the general effectiveness of the PMF.

Recommendations

The Division of Payroll expends about four person years (about $60,000) interacting with the Personnel Master File, including two person years processing adjustments generated by personnel actions. Initiating improvements in the timeliness of employee recordkeeping systems would make possible a reduction in the level of these payroll resources. The findings presented in this chapter primarily concern issues which, while they impact the payroll system, derive from systems outside the control of payroll. Issues concerning position control and employee recordkeeping pertain to the personnel function. These issues have been perceived solely from the viewpoint of the payroll system and the findings are limited by this perspective. It would be inappropriate in this study to make recommendations on such a basis. The findings, though, do suggest ample need for improvement in position control, employee recordkeeping and operation of the Personnel Master File. The MORE study of Personnel Services will address these issues and form a balanced perspective from which specific recommendations may evolve.

The perspective of this study does provide a basis on which to make the following recommendations

- Payroll computer programs should be enhanced to provide the capability of compensating employees on the basis of more than one salary rate and the ability to distribute salary payments to more than one budget account.

- The capability to process corrective personnel actions during the period the Personnel Master File is otherwise frozen for attendance processing should be provided.

- The efficiency of daily payroll control procedures should be improved to

  . Downgrade Division of Payroll attempts at verification of Personnel Action Notices to a general review for reasonableness.

  . Enhance daily compare computer programs to provide for the Divison of Payroll the net change in control balances arising from personnel actions.

- Procedures involving salary authorization for supported projects employees to conform with administrative policy should be modified so that

  . Eligibility for compensation is based solely upon project approval or authorized exemption; and that

  . Salary payments so authorized are promptly recorded in the accounting records.

CHAPTER 5

LEAVE ACCOUNTING

Introduction

Accounting for leave benefits provided permanent employees and recording of their usage comprise the primary activities within the leave process. Responsibility for this recordkeeping function rests with the Division of Payroll. All leave information is stored on two computerized files and is maintained independently from the Personnel Master File. Information on these files include employee identification data; position characteristics relevant to determination of leave benefits; cumulative and yearly earned and advanced balances for sick, annual and personal leaves; and leave usage by the various available categories.

This chapter addresses such questions as: Are procedures for gathering and maintaining leave information efficient? Is the manner of data collection effective for monitoring compliance with MCPS leave regulations and in supplying appropriate information to administrators and employees?

Leave policy is largely a personnel matter. Though policy may impact payroll, it is not a function of the payroll system to formulate leave policy. Thus, the focus of review in this study is upon accounting for leave usage and maintaining leave balances. Policy related issues are a subject which will be evaluated during the MORE study of Personnel Services.

Findings: Leave Accounting Structure and Automation

Leave Accounting Structure

The process of accounting for leave benefits available to employees operates independent of other personnel/payroll functions. Leave information is stored on two separate computer files, one for professional employees and one for supporting services employees, with each supported by its own recordkeeping systems. While leave accounting addresses objectives and recordkeeping needs which are separable from personnel recordkeeping and attendance processing

functions, the process is structurally dependent upon these functions as primary suppliers of leave information. The level of recognition of informational dependency upon personnel recordkeeping and attendance processing impacts overall effectiveness of the leave accounting function.

Each employee leave record contains personal information and position characteristics which include:

- social security number
- position class number
- school number
- number of pay periods (to be paid)
- percent full time
- units scheduled
- employment date
- work unit type (hours/days)
- pay code (10 or 12 month employee)
- years experience
- permanent status code

Leave benefits are determined on the basis of above employment status and position characteristics. For example, a twelve-month employee, with permanent status, less than four years experience, working eighty hours a pay period, will receive annual leave benefits of 120 hours. Each of these descriptors affects the type and amount of benefits available. The source of this employment information is the Personnel Master File (PMF).

Leave accounting relies on the PMF for the information it requires for determining those employees who qualify for leave benefits and on what basis benefits are to be provided. However, there is no linkage between the PMF and the leave file which provides for concurrent maintenance of information common to both files. Personnel activity which affects leave information must be processed twice: recorded first in the PMF and then separately recorded in the leave file.

In contrast, leave accounting arising from attendance reporting is integrated within the attendance process of the professional and supporting services payrolls. The biweekly attendance process is the primary source of leave usage and activates calculations of leave earned by employees. This relationship is recognized by incorporating the informational needs of leave accounting into the attendance processing structure. Thus the leave file is systematically updated to reflect leave taken by employees, leave earned during the pay period and new cumulative leave balances, directly from attendance information.

The attendance process also supports leave accounting through incorporation of controls to prevent employees taking more leave than is available to them. These controls provide automatically for the appropriate disposition of excess leave. The disposition of excess leave follows prescribed remedies which, depending on the leave category involved, automatically will (1) reallocate any reported excess leave to another available category with no loss in pay to an employee; (2) treat the excess as leave without pay with a resultant loss in pay to an employee; or (3) apply a combination of the two preceding remedies.

Structural separation of the leave files from the PMF also impedes access to current leave information. On-line data retrieved through remote computer terminals is limited to information contained in the PMF. As a separate system, similar access does not extend to employee leave information. Access to leave information is provided through biweekly leave balance reports produced as a product of attendance processing. The impact on leave balances from interim period adjustments and personnel actions is not visible until the next succeeding leave balance report update.

Automation of Leave Accounting Procedures

With one exception, the leave accounting process lacks any substantive benefits achievable through system automation. The process is almost entirely supported by clerical efforts. The one exception is in accounting for leave usage emanating from employee attendance reporting. Leave balances are automatically adjusted and updated during attendance processing. Computer technology is used to perform intelligent functions such as accruing leave earned by employees and identifying and determining disposition of excess leave. Clerical intervention is minimized.

Even in the area of attendance processing, there are lapses in leave accounting automated support arising out of policy changes implemented since initial development of payroll computer applications. For example, ten-month professional and supporting services employees working during the summer report attendance, respectively, on the extended year employment (EYE) payroll and the temporary, part-time payroll. These employees are allowed to use accumulated sick leave benefits. However, the attendance processing programs for these two payrolls have never been fully adapted to accept leave reporting. In this instance, a policy change was not followed by investment in appropriate procedural modifications. As a result, the burden of accounting for leave usage on these two payrolls has shifted to payroll clerks, who in the absence of automated support must rely on manual adjustments.

More prevalent is the lack of automation to support leave activity occurring due to employment changes. In this area, leave accounting is nearly all a clerical effort. When changes in employment status occur, those changes must be reflected in the leave file. A simple computer match of the leave file against the PMF once every two weeks is used to reflect current position characteristics in the leave file. This computer match is beneficial as it reduces reliance on clerical input. However, the benefits of this process are negated by the fact that corresponding adjustments to leave balances necessitated by employment changes are not an integral part of the match update.

Adjustments of leave balances necessitated by personnel activity are processed entirely on a manual basis. Payroll clerks review personnel actions, noting

those necessitating adjustments of leave balances. The effect of each action is calculated and resultant adjustments are scheduled out for inclusion in the leave file.

The adjustment process is made far more complicated than it need be due to the lack of meaningful automation. This is primarily evident through nonrecognition of the relationship between leave file information elements. First, there is a relationship between employee position characteristics and leave balances. As stated above, position characteristics determine the type and amount of leave benefits to be earned and accumulated. Second, the relationship between leave balance elements is additive. That is, an increase in sick leave advance requires a corresponding increase in the cumulative sick leave balance; an increase in sick leave used requires a decrease in the cumulative sick leave balance. Current computer programs, lacking any intelligent capabilities, provide no assistance recognizing these relationships. This function is left entirely to payroll clerks. Payroll clerks must identify when an action requires adjustment of leave balances, calculate the impact individually on each balance, and prepare a separate adjustment increasing or decreasing each affected leave element.

Implications of the Findings

Overall the leave accounting process is inefficient. In part, the process is structurally inefficient. To a far greater degree, it is inefficient because of the near absence of meaningful automated support. Substantial clerical effort is expended maintaining what otherwise purports to be an automated process.

Structural separation of the leave file from the Personnel Master File is inconsistent with the extent of dependency of leave accounting upon personnel recordkeeping. The leave accounting process is driven by personnel recordkeeping. It cannot function without, and is sensitive to changes in, employee position characteristics. Yet, the process has no direct access to personnel actions.

Without direct access to personnel actions, the leave process must maintain employee position information which duplicates that already contained in the PMF. Separate systems are used to keep each information file up-to-date. Use of separate systems for maintaining common information means transaction processing is redundant. This redundancy is longitudinal. That is, personnel actions are first recorded in the PMF, after which they are then recorded in the leave file. A minimum of two days is required to reflect a single employment action in both records.

The leave process requires more direct access to personnel information than is now available. Restructuring the relationship between leave accounting and personnel recordkeeping to improve the exchange of information would benefit overall employee records maintenance. Separate transaction processing is

inefficient. Personnel actions must be prepared, recorded and verified twice rather than only once. Such methodology increases work effort, for a single action is processed first by the Department of Personnel Services and then later by the Division of Payroll. The delay introduced by this structure impedes the ability of maintaining employee information on a timely basis, an important requirement of the attendance process. A mismatch between PMF and leave file position characteristics may cause improper rejection of an employee's attendance from payment, the recovery from which can only be accomplished through clerical intervention.

Except for leave accounting, the central file for employee records is the Personnel Master File. In 1976, when the current PMF was designed, space was provided for inclusion of leave information. Leave data was not included in the PMF at that time to satisfy a need for independent verification of PMF accuracy. Whether or not that need continues to exist today, the leave file is not as effective a control mechanism as would be procedures specifically designed for that purpose.

Segregation of leave information from the PMF negatively impacts overall personnel recordkeeping. This structure requires duplicate records, causes redundant transaction processing and impedes overall capability of maintaining and accessing accurate and timely employment records. In the attendance process, leave file maintenance intercedes in the process before attendance can be recorded in the PMF.

The need for improvement in structural efficiency strongly suggests incorporation of leave information into the PMF. Leave accounting would become an extension of personnel recordkeeping and cease to exist as a separate entity.

Accounting for the impact on leave balances for changes in employment status is in all cases a separate effort performed by the Division of Payroll. There is no automated support which would facilitate this aspect of leave accounting. Leave recordkeeping relies almost wholly upon clerical efforts. Archaic programs relegate the computer to little more than a sophisticated file cabinet. As a result, leave recordkeeping is overly labor intensive and far too subject to the effects of human error than acceptable in what purports to be a computerized environment.

On the average, approximately .7 person years (about $12,000) of professional and supporting services payroll teams work efforts are devoted to the identification and preparation of leave balance adjustments arising from personnel activity. This effort increases significantly in response to numerous employment realignments which occur annually in preparation for each new school year. In terms of manual effort, payroll clerks cannot compete with computer technology over the speed with which computations can be made. Depending upon the nature of the transaction, payroll clerks may spend as much as a half an hour calculating leave adjustments for a single personnel action. Automating leave recordkeeping procedures would eliminate the need for clerical preparation of leave balance adjustments arising from personnel actions.

Lack of automation also unnecessarily exposes the leave process to human error. Current application of computer technology is inconsistent. It provides for biweekly updating of employment characteristics, yet ignores any corresponding impact on leave balances. Payroll clerks are left to their own resources to note the need for leave adjustments. With no automated connection between personnel characteristics and leave balances, errors may go undetected by the system, placing undue reliance upon employees to note errors in their leave balances. The volume of activity is too large to expect payroll clerks, in the absence of computer support, to provide effective control over the accuracy of leave information. For example, a computer control preventing ten-month employees from carrying annual leave benefits is far more effective and timely than expecting payroll clerks to review thousands of records for the same purpose. Leave accounting sorely needs the benefits of computer technology. The process is far too labor intensive, cumbersome and ineffectual. Major improvements to leave maintenance can only come through complete automation of the process.

One particular case vividly illustrates deficiencies in the leave accounting process. This example concerns an employee who at the beginning of the school year transferred from a ten-month position to a twelve-month position, then after several weeks transferred back to a ten-month position. Following is the sequence of errors which transpired, coupled with system weaknesses which fostered an environment for error.

Sequence of Errors	System Weaknesses
o Reacting to a change in status, payroll clerks advanced annual leave, but based upon the wrong number of years experience; later corrected to increase advanced annual leave.	Independence of leave file from PMF required payroll clerk to manually process the personnel action in the leave file. Redundant processing increases the probability for, and in this case, an error occuring.
o While processing an attendance correction, clerk made an error in adjusting leave balances.	Leave adjustments are entirely a manual process lacking any automated support which would enhance reliability.
o When employee reverted back to the ten-month position, clerk processed adjustment to delete annual leave advance. However, because the adjustment made to correct the first error was not yet recorded in the leave file, that portion of the advance was not deleted and remained on the employee's leave record.	While the PMF is updated daily, leave file activity is only processed biweekly. Thus the Division of Payroll, as happened in this case, may be using out-of-date information. Further, the process lacks timely control to prevent ten-month employees from carrying annual leave balances.

Sequence of Errors	System Weaknesses
o Eight months later, employee used a portion of the remaining leave balance, though ten-month employees are not entitled to take annual leave. At June 30, a year-end computer leave update program deleted remaining annual leave balance from employee's record.	There are no automated controls preventing such unauthorized usage. Burden falls on payroll clerks to review thousands of transactions to prevent such usage. Further, reliance on periodic checks does not assure timely error detection.

A restructure of the leave process which consolidates employee records maintenance, treats leave accounting as an extension of overall personnel recordkeeping and automates procedures and controls would yield significant improvements as follows:

- o Eliminate duplicate records. Including leave information in the PMF avoids maintaining the same position characteristics information in separate files. Leave accounting would satisfy its information requirements directly from the PMF.

- o Eliminate redundant transaction processing. The important step here is coupling the needs of personnel accounting and leave accounting into a single action. When the Department of Personnel Services transacts a personnel action, automated procedures are triggered which not only process the employment action but also concurently calculate and record corresponding leave adjustments. Payroll clerical involvement would not be required to initiate leave transactions, but rather, would center on control over transaction integrity.

- o Provide timely information. Concurrent transaction processing would cut processing time from the current minimum two days down to one day. Biweekly leave maintenance turnaround would be replaced with a daily update. Timely processing would contribute to a reduction in the probability of employees, expecially new employees, being rejected from attendance processing because of incorrect leave file information. Incorporation of leave balances into the PMF would also provide on-line data retrieval capability for accessing up-to-date leave information.

- o Conform payroll computer applications with current leave policies. Present applications have not kept up with changes in leave policies. A decision to open computer applications to revision provides a much needed opportunity to update automated procedures to reflect current leave policies.

- o Enhanced computerization would allow application of internal computer checks improving overall leave file integrity.

Findings: Professional Employees Leave Reporting

The basis on which professional employees report leave and attendance depends on whether they are working in a full-time position or are working in a part-time position(s). Professionals assigned full-time positions report attendance on a basis of days worked, in either one-half or full-day increments. Professionals assigned part-time or split positions, report attendance on a basis of hours worked, including fractions thereof. Among the regular biweekly payrolls, full-time professionals are the only employee group which does not report on an hourly basis. Daily basis reporting by this one group negatively impacts leave accounting in several ways.

The combination on the same payroll of daily and hourly basis reporting complicates leave records maintenance. Different reporting bases contributes to a general tension in the leave process. The computerized leave file is blind as to units of measure. That is, there is no differentiating between the value of one day or one hour. The onus for making such distinctions falls upon payroll clerks. Payroll clerks must be cognizant of the applicable unit of measure when reviewing records or calculating adjustments. Often this requires researching basic file documents to make such determination.

The greatest tension producing point occurs in conjunction with annual budget position and staffing realignments when professional employees assignments change between full-time positions and part-time positions. Payroll clerks must convert employee leave balances to a new basis of reporting, either hourly or daily, a laborious, time-consuming process. Further, the leave balance conversion process must be timed to coincide with similar conversion of payment basis and employee attendance reporting. Inappropriate timing at any of these three points can cause an error in employees' leave records or incorrect paychecks. As a result, the Division of Payroll closely monitors all conversions. Since annual budget position realignments is a fluid process, it is not uncommon for the Division of Payroll to convert an employee's leave record from, say, a daily to an hourly basis and a short time later, to reconvert leave balances back to a daily basis.

While hourly employees are directed to report leave down to a fraction of an hour, daily employees are directed to report leave in half-day increments. The practice of reporting absences in increments of one-half day impedes daily basis employees from accurately reporting leave usage.

Attendance processing programs are designed to accept reported time to only one decimal place. With hourly employees, this requirement is met by providing employees with a scale which converts minutes into tenths of an hour. An employee who takes one hour and forty-five minutes sick leave (1.75 hours) for a doctor's visit would report 1.7 hours, resulting in a minor difference between actual and reported time of three minutes. On the other hand, a daily rate employee taking two hours sick leave (.25 day) would have to report either .2 or .3 days, resulting in a far larger variation of one half hour.

When employees did report correctly .25 days, the Division of Payroll would have to change the time to either .2 or .3 days. Reporting absences in half-day increments was intended to eliminate this rounding problem. A half day was selected by the Division of Payroll based on the tradition that since substitutes cannot be engaged to work for less than a half-day, teachers will always take at least a half-day of leave.

School timekeepers were asked in a sample survey how full-time professional employees report absences of less than half a day and between one-half and a full day. Responses concerning the disposition of absences of less than one-half day were as follows:

Disposition	Percentage Timekeepers Responding
Absence excused	23%
Excused, unless substitute required	5
Excused if teacher arranges coverage	3
School policy is to report one-half day	31
Delay reporting until accumulated absences equals one-half day	20
Does not occur	10
Report actual fraction of a day	5
Report one-half day, credit excess against future absences	3
Total	100%

Following are responses concerning the treatment afforded absences of between one-half and a full day.

Disposition	Percentage Timekeepers Responding
School policy is to report full day	38%
Teachers always take full day	18
Does not occur	10
Report full or half-day depending on how long substitute required	10
Report one-half day	8
Delay reporting until accumulated absences equals a full day	8
Report full day, credit excess against future absences.	5
Report actual fraction of a day	3
Total	100%

The manner of treating irregular absences, as reflected in timekeeper responses, is wholly inadequate to protect the interests of both MCPS and full-time professional employees. Current practice may produce any of the following negative effects:

- Underreporting of leave usage costs MCPS in employee productivity and in excess accumulation of leave balances which inflate monies paid employees at termination for "unused" leave.

- Overreporting of leave usage penalizes employees.

- Requiring employees to separately track absences until a half-day or full-day has been accumulated places an unnecessary responsibility upon employees and jeopardizes the accuracy of leave reporting.

- Limiting absences to a half or a full day forces employees to take more time off than may be needed, costing MCPS in employee productivity and substitute salary expenditures.

Even when employees report the actual fraction of a day absent, computer program limitations force errors in reporting of up to a half hour.

Implications of the Findings

The findings suggest there is little to commend the policy of full-time professional employees reporting leave usage on a daily basis. This practice is detrimental to the attendance and leave accounting process, implies increased expenditures and fosters differential treatment of employees in application of leave policy.

The cost in clerical resources required to accommodate the mixture of daily and hourly reporting is incorporated in the .7 person years presented in the previous section as resources devoted to the maintenance of leave balances. It is not feasible to determine an actual expenditure arising out of present leave reporting practices. However, the manner of treating leaves of irregular periods suggest, first, an increase in the liability for payoff of accumulated leaves and second, an increase in substitute expenditures to the extent the practice encourages employees to take more leave than needed.

The variance in practice found in the sample survey reflects differential treatment of employees. While an employee at one location need not report an hour taken for a doctor's appointment, were that same employee at another location, a half day's leave may have to be reported. Differential treatment also exists between daily and hourly employees' leave reporting. Hourly employees are required to report time down to a tenth of an hour, or in intervals of six minutes, with a procedural error rate of three minutes. Daily employees, in reporting time in half-day increments, or four-hour

intervals, positively or negatively, are faced with an error rate of from one-half hour to three hours, depending on the practice they must follow at their work location.

The negative aspects of daily reporting can be reduced through improved computerized support to reduce clerical resources (as noted in the previous section) and by introducing a scale for reporting leave in fractions of a day representing half-hour intervals to improve reporting accuracy and equalize practices. However, such remedies address effects rather than cause.

All employees, except professional, are compensated on the basis of a negotiated schedule of hourly rates. Hours are thus a natural unit of measure for calculating wage payments and reporting attendance. Professional employees are compensated on the basis of a negotiated schedule of annual salaries. Some unit of measure is necessary to provide for periodic salary payments and for attendance reporting, the selection of which is procedural. For professionals, the selection is inconsistent; part-time professionals are compensated and report time on an hourly basis, while full-time professionals are compensated and report on a daily basis. The findings suggest that both MCPS and employees would benefit were all employees, including full-time professional, to use the same unit of measure, namely hours, for reporting attendance.

Findings: Leave Balance Disclosure

Employee biweekly paycheck stubs present sick and annual leave balances available for use by employees. This practice of regularly informing employees of sick and annual leave availability is meritorious. Apprising employees of leave balances is beneficial in avoiding any confusion as to availability which may result in docking an employee's pay for leave taken in excess of existing balances. However, the nature of current disclosure presents incomplete and potentially misleading information.

The amount of sick and annual leave balances disclosed on paycheck stubs consists of cumulative unused leave from prior years, plus leave advanced for the current year, minus leave used to the date of the paycheck. Though this balance represents leave benefits available for use, it does not necessarily represent the amount of leave an employee will actually earn. The amount of leave earned may differ from what has been advanced.

Employees are advanced leave based upon their anticipated annual work schedule. An employee working his/her full schedule will at the end of the fiscal year have earned leave benefits equal to that advanced the beginning of the year. If an employee incurs any absences without pay, he/she will not earn all leave which has been advanced. Employees are liable for repayment of any excess use of advanced leave, the satisfaction of which is normally attained through a reduction in the succeeding year's advance.

Disclosure of leave availability is based upon leave advanced and does not reflect the effects of unearned leave. Thus, the balances presented will not alert employees of actual or impending liability for excess use of advanced leave if they earn less leave than taken. On an "advanced basis," disclosure depicts availability of leave benefits during the year, declining as leave is used and if all leave is used, reaches a balance of zero. This basis does not reflect adjustments which reduce actual leave available when an employee is absent without pay. When employees are so absent, they do not earn sick or annual leave. The leave accounting process captures adjustments which reduce earned leave, but does not apply them against employee balances to reduce the amount of leave available. So during the year, balances provided employees can be overstated.

Implications of the Findings

There were 913 employees in fiscal year 1981 who ended the year with a negative sick or annual leave balance. Because advanced basis disclosure is not adjusted for unearned leave until the end of the fiscal year, it is quite probable that most, if not all these employees were unaware of their position until finding their fiscal year 1982 advance reduced by the amount of unearned leave. Without prior knowledge, employees cannot intelligently plan leave usage.

Prudent planning of leave usage requires informed disclosure. Leave information presented on employee paychecks falls short of this mark. The emphasis of present disclosure is upon use of advanced leave. While employees are allowed to use leave in advance of its being earned, they are nonetheless responsible for unearned leave, and should be made aware of this. A simple, effective way to improve disclosure to employees is to reduce leave balances directly for unearned leave. Overuse of advanced leave would not be eliminated in total, but should be reduced substantially. This approach would avoid giving employees the impression they have more leave than they will actually earn and would also provide a direct relationship between earned and advanced leave which is visible to employees.

Findings: Disability Leave/Workman's Compensation Insurance

Employees who are absent as a result of injury caused by an accident occurring in the course of his/her employment may receive continued salary payments through disability leave benefits contained in association agreements. Disability benefits provide full payment of salary during the period of such absences, less the amount of any workman's compensation insurance payments awarded.

Disability leave must be requested by employees and approved by the Department of Personnel Services. Authorizations are requested as well from principals/directors and area offices. Final approval of disability leave is contingent upon approval of a workmen's compensation claim by Montgomery County Claims Services.

Notification of approval of a disability leave request is distributed to appropriate officials, including the Division of Payroll. This notification to the Division of Payroll becomes the authorization to pay disability leave. There are no defined procedures notifying employees of disability leave approval.

Separately, an employee must file an accident report with the Division of Insurance and Retirement, which becomes the basis of request for awarding workman's compensation payments. The Division of Insurance and Retirement reviews accident reports for completeness and forwards them on to Montgomery County Claims for processing.

The Division of Payroll is responsible for processing disability leave reported by employees, adjusting salary payments for workman's compensation awards and adjusting payroll attendance and salary records for claim approval/disapproval. The nature of workman's compensation claims generally causes the division to process such adjustments on a time consuming retroactive basis.

Implications of the Findings

In practice, the procedures requiring approval for disability leave benefits are, at best, not relevant and at worst create substantial risk to an employee for repayment of disability leave benefits should his/her workman's compensation claim be disallowed. Approval of disability leave is contingent upon a workman's compensation award, yet it is otherwise a wholly separate process from workman's compensation. Disability leave follows a trail of approvals which in the end does not have a bearing on actual approval.

For supporting services employees, approval of workman's compensation claims is the central issue for receipt of disability leave benefits. However, the payroll system is linked to the disability leave process for determining whether or not an employee is authorized for continuing salary payments. Because an average thirty day period is needed by Montgomery County Claims to process workman's compensation claims, intervening salary payments are made on a contingent basis. The contingent nature of these payments necessitates complex accounting by the Division of Payroll as well as exposing employees to the risk of liability to MCPS for repayment of salary in the event claims are disallowed.

For professional employees, the central issue is interpretation of the MCEA agreement of disability leave benefits. One interpretation suggests that MCPS must approve disability leave benefits regardless of the merits of the associated workman's compensation claim. Under this interpretation, a professional employee must receive continued salary payments under disability leave even if his/her workman's compensation claim is denied.[1]

Workman's compensation insurance is a complex area which under any system is a cumbersome operation. The dual systems for disability leave and workman's compensation claims, and the question of interpretation of disability leave benefits further complicate this area. The limited resources of this study are insufficient to address this complex area. MCPS should form a working committee to study disability leave/workman's compensation policies and procedures and to make recommendations to improve the effectiveness of this area. Suggestion for issues and related questions the working committee should address include

- Approval process. Should disability leave/workman's compensation approval procedures be consolidated under an umbrella approval process? Since disability leave is contingent upon an approved workman's compensation claim, should an umbrella approval process center around workman's compensation claims processing and approval procedures?

- Functions and responsibilities. Who should participate in the approval process and who should be included on an information basis only? Should one office be given overall responsibility? Is the dissemination of information appropriate? Is it adequate? Are there any functions which would benefit from computer support? Would improvement in computer support be cost-effective?

- MCEA contract interpretation. Is MCPS obligated contractually to approve all professional employee requests for disability leave benefits?[1]

- Contingent benefits. Should interim contingent disability leave benefit payments be made prior to resolution of workman's compensation claims? Are there alternatives which would lessen the risk to both employees and MCPS currently associated with interim benefit payments? Can or should MCPS grant interim benefit payments on the basis of a preliminary decision of the merits of a workman's compensation insurance claim while awaiting a ruling by Montgomery County Claims Service?

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[1]The new MCEA contract, which became effective July 1, 1982, states that approval of disability leave is contingent upon final approval of the related workmen's compensation claim, thereby clarifying, for periods subsequent to July 1, 1982, the issue of contractual interpretation.

Findings: Leave Benefit Categories

Leave accounting is designed to capture leave usage under fifteen separate categories. The categories correspond with the types of short-term leave benefits provided in Association Agreements. These categories include:

- personal illness
- illness in the family
- annual leave
- personal leave
- holidays
- emergency leave
- bereavement leave-immediate family
- bereavement leave - other
- sick leave bank
- professional leave
- unusual and imperative leave
- military leave
- civil leave
- disability
- leave without pay

A question periodically posed concerns the need to account for leave usage at this level of detail versus some alternative which consolidates leave reporting for attendance processing purposes into fewer categories. The underlying logic of the question suggests that leave reporting is directed by the need to control usage and the need for administrative information, so that a category lacking these requirements would not necessitate specific reporting as a separate category.

Certain types of leave benefits are subject by Association Agreements to usage limitations which require specification in attendance reporting to accumulate usage for measurement against limitations, effecting when necessary, a cutoff of further usage. Sick leave is captured under two categories, personal illness and illness in family, to monitor usage under different limitations as provided in Association Agreements. Other types, such as professional and civil leaves, are not subject to defined limitation, but are captured for administrative purposes, for example, in evaluating substitute teacher budget requirements.

A proposal which has been suggested would reduce the number of reporting categories from fifteen to nine. This reduction is effected by combining personal illness and illness in the family into a single sick leave category and consolidating reporting of bereavement, professional, unusual and imperative, civil and military leaves under an umbrella category, other leave. Rationalization for their consolidation under the former states that since employee use of sick leave is controllable only in the aggregate, no purpose is served by using two categories; and in the latter, the six categories do not require centralized control and administratively provides sufficient analytic information whether combined or reported separately.

Implications of the Findings

Reducing the number of reporting categories offers to simplify attendance preparation and merely through a reduction in categories lessens the potential for misclassification of leave usage. However, this study makes no recommendation concerning consolidation as achievable benefits do not appear material and little processing emphasis is now given to categories which would be candidates for consolidation. Nor would keypunching activity likely be reduced as, even in combined form, leave usage would still require processing. On the other hand, some level of reasoning does exist for individually reporting each category.

A word of caution is necessary concerning the useability for administrative analysis of the six categories mentioned above. First, the mixture of daily and hourly reporting raises a question of the interpretive value of information which contains no assigned unit of measure; a case of mixing apples and oranges. Second, these categories are not subject to unit of measure conversion when employees move between hourly and daily assignments. Thus, the historical basis for identification of unit of measure is lost.

Findings: Other Leave Accounting Matters

Employees on Long-Term Leave

A category known as "9999s" consists of a small group of employees (38 in February, 1982) who are on long-term leave usually for personal illness or maternity leave. While in this classification, these employees receive no regular salary, but can continue receiving salary payments by using accumulated sick leave benefits. As long as payments can be made from leave benefits, these employees also continue to earn additional leave benefits, which adds to the pool of benefits available for continued salary payments. However, because of the nature of leave accounting computer programs, biweekly accruals of leave earned must be manually maintained by payroll clerks; involving calculation of additional leave earned and processing an adjustment to add that amount to employee's leave file record. While the clerical time involved in processing salary payments for this group is not significant, approximately three hours each pay period (about $500 annually), the processing methodology is at best a nuisance and at worst highly prone to clerical errors. The process is a nuisance because payroll clerks are replicating computer functions which credit these employees for leave earned, but, because of program structure are incapable of crediting for payment. Reliance on manually calculated balances introduces the potential for clerical error. Payroll clerks do periodically match their calculations against computer calculations to check the accuracy of their figures. The disclosure

of one such error in fiscal 1982 became a highly visible matter, involving a number of offices including the Montgomery County Council, the Board of Education and the superintendent of schools.

Annual Leave Anniversaries

Association Agreements provide three levels of annual leave based upon the number of years employment with Montgomery County Public Schools. Determination of the amount of annual leave to advance employees is based on their years of experience. While professional payroll leave accounting procedures use years experience data for this determination, supporting services payroll procedures use a determination method based upon permanent status codes. Using permanent status codes is a convoluted approach to determining the amount of leave advancement. The information necessary for such determination, years experience, is already available in employee leave records. Translating that information into code form is not necessary and ought to be discontinued.

In the year a professional employee reaches an annual leave anniversary, payroll clerks credit the employee's leave record for an additional year of service and advance annual leave at the next higher level. Payroll clerks then must make a note to reverse out the addition of one year to the years experience field come the end of the fiscal year. This reversal is made necessary by the fact that at the beginning of the next fiscal year the match of the PMF against the leave file will also increase the employee's years experience by one year. If the Division of Payroll neglects to process the reversal, years experience on the employee's leave record will be overstated.

Computational Rounding Factor

The Division of Payroll computes all leave balances and adjustments to four decimal places. This practice involves a level of accuracy wholly unnecessary for proper leave accounting. The value of .0005 hours or .0005 days is purely esoteric. Rounding calculations to one or two decimal places would be sufficient to provide for accurate leave accounting.

Implications of the Findings

Individually, these items do not constitute significant deficiencies. Yet taken as a whole, they reinforce the need to evaluate and revise the leave accounting function. The lack of meaningful automation shifts responsibility onto the shoulders of payroll clerks. The lack of structural integration of leave accounting with personnel accounting creates unnecessary and at times dysfunctional practices. Lastly, a general inertia impedes the desire for change, even when it involves practices that no one wants or needs.

Recommendations

Recommendations here are necessarily general as decisions concerning implementation are many and are best reserved for payroll management to address. The aforementioned findings strongly suggest a major initiative to overhaul the leave accounting process to effect the following recommendations:

- Incorporate all leave accounting information into the Personnel Master File. Separate leave files for professional and supporting services employees should be discontinued.

- Consolidate basic employee recordkeeping procedures into one system in a manner which recognizes leave information maintenance as an extension of general personnel recordkeeping; eliminating the present dual recordkeeping systems.

- Improve data access and retrieval by extending remote terminal display capabilities to the leave accounting area.

- Introduce computer technology to:

  . minimize reliance on clerical intervention

  . improve integrity of leave information

  . facilitate monitoring of compliance with MCPS leave policies

  . extend full leave accounting capabilities to the extended year employment and temporary, part-time payrolls, and employees on long-term leave

- Standardize leave and attendance reporting by applying the same hourly reporting basis to all employees.

- Amend the basis on which leave balances are presented on employee paycheck stubs by reducing the balances reported as available for use by the amount of any portion of advanced leave which will not be earned by an employee.

- Establish a committee with a mandate to study disability leave/workman's compensation policies and procedures. Among others, this committee should include a representative from the Department of Personnel Services, Division of Payroll, Division of Insurance and Retirement, Department of Association Relations and Division of Administrative Analysis and Audits.

- Determine supporting services employees annual leave benefits by using years experience data directly rather then by using permanent status code indicators.

- Round all leave balance computations to no more than two decimal places.

A restructure of leave accounting suggested by these recommendations offers the Division of Payroll an opportunity to reduce clerical resources in this area by .75 person years for an estimated aggregate savings of $13,000, including fringe benefits.

CHAPTER 6

ATTENDANCE PROCESSING

Introduction

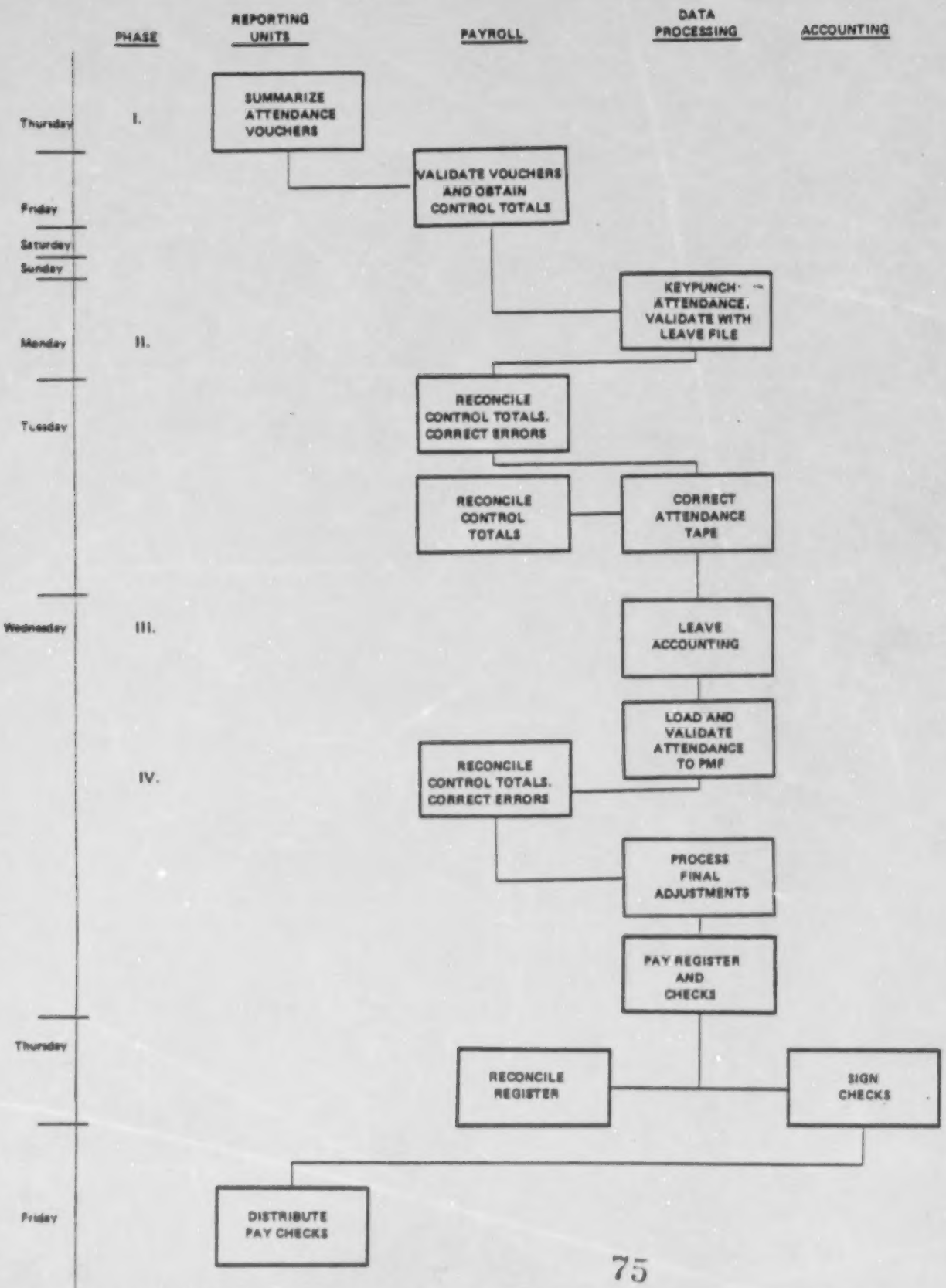
The purpose of this chapter is to evaluate the efficiency of attendance processing procedures. In its simplist terms, attendance processing comprises a set of procedures designed to accumulate employee attendance data and to combine that data with salary compensation information for production of a paycheck. These procedures occur in the following four phases:

Phase	Procedure
I	Attendance collection and summarization a. Collect and summarize employee attendance b. Validate attendance data
II	Attendance data conversion a. Batch attendance documents b. Keypunch attendance data c. Validate employee authorization for payment against leave file d. Reprocess errors and adjustments
III	Leave accounting a. Update employee records for leave earned and used during pay period
IV	Payment processing a. Load attendance onto the Personnel Master File b. Validate employee authorization for payment c. Reprocess errors and adjustments d. Produce paychecks

Exhibit 6.1 diagrams the functions within each phase of the current attendance processing cycle. There is not a single attendance processing cycle. There are six separate attendance processing cycles, one for each employee payroll group. Although there are variations in specific procedures between

EXHIBIT 6.1

CURRENT ATTENDANCE PROCESSING CYCLE



attendance cycles, they all share sufficiently similar design characteristics to allow all to be evaluated in terms of the phases outline above. The existence of multiple payrolls is itself a major issue affecting not only attendance processing, but the payroll system as a whole. Because of its importance the issue of multiple payrolls is addressed separately in Chapter 7.

Findings: Attendance Collection and Summarization

The function of phase I of the attendance processing cycle is to collect, summarize and validate employee attendance data. The employee attendance voucher is the basic source of attendance data. All payrolls require some form of attendance reporting as a precondition for salary payments. The type of document used and the manner of reporting varies between and within payroll groups. There are eight attendance voucher forms in use and fifteen identifiable ways of collecting attendance. Collection methodology incorporates a variety of principles and procedures. Across employee groups attendance may be reported in daily, hourly, nightly, or singular units on a positive basis, exception basis, or on a modified exception basis. Attendance data may be collected biweekly, triannually, or during specified intermittent periods. All payrolls specify some form of attendance reporting by employees. However, there is little consistency within and between payrolls in attendance reporting requirements.

The attendance processing timetable specifies that location timekeepers transmit attendance documents to the Division of Payroll by the close of business on the last day of the pay period. In order to meet this timetable, employees are usually required to submit their attendance vouchers to timekeepers on the last Thursday of the pay period, giving timekeepers that day for preparing attendance documents for submission to the Division of Payroll the following morning. Meeting these deadlines necessitates an estimation by employees of their reportable attendance for the last work day of the pay period. Under normal circumstances, employees should be able to accurately anticipate their work schedule. However, an unexpected absence or the working of overtime would result in incorrect attendance reporting. Payroll procedures specify that adjustments of previously report time be submitted using a voucher correction form. Other implications associated with this requirement that attendance be estimated for the final day of the pay period are summarized in Chapter 8.

Responsibility for summarization of employee attendance data resides with either location timekeepers or payroll clerks depending upon payroll group. Employee attendance on the two permanent payrolls and the EYE payroll is transcribed by location timekeepers onto summary attendance vouchers. Summary attendance vouchers are preprinted reports containing relevant position information, valid as of the beginning of the pay period, for each employee by reporting location. Timekeepers fill in the days/hours worked and absences taken by leave category as reported by employees. Any changes in preprinted information or employment changes occurring since the beginnning of the pay period are reflected on the summary vouchers by timekeepers writing in the new

information. An important requirement of the two permanent payrolls is the determination by the timekeepers that each employee's reported attendance balance with his/her days/hours scheduled for the pay period. That is, if an employee is scheduled to work eighty hours, the timekeeper must, through a combination of time worked and absences, fully account for eighty hours.

Employee attendance on the temporary, part-time and the extracurricular activities payroll is summarized by payroll clerks rather than timekeepers. Reporting locations transmit individual attendance vouchers to the Division of Payroll. Payroll clerks then transcribe employee attendance onto summary documents. There is no requirement to balance reported attendance to hours scheduled, as there is with the two permanent payrolls, since these employee groups are not subject to a predetermined work schedule.

Payroll teams apply a number of procedures against reported attendance which are intended to verify the accuracy of data prior to its submission for computer processing. The objectives of these procedures are twofold: to ensure that employees are compensated only as authorized and to detect errors which would cause an employee's attendance to be rejected during attendance computer processing. In large measure, the application of these procedures is either redundant or inappropriately matched with functional responsibility.

Payroll teams procedures ignore the responsibilities and/or capacity for attendance verification provided by reporting units. Further, application of these procedures are generally redundant with both timekeeper functions and computer processing edit controls. Examples of procedures which fall in this category including the following:

- Verifying that timekeeper corrections or additions to preprinted summary attendance vouchers agree with data in employee's PMF record.
- Comparing all EYE employee time vouchers to summary attendance vouchers to ensure correct timekeeper preparation.
- Verifying the mathematical accuracy of attendance documents, including determination that each employee's time reported agrees with his/her units scheduled.
- Determining that time charged to the sick leave bank is in compliance with an employee's grant authorization.
- Determining that any excess use of bereavement leave is supported by unit manager approval.
- Determining that a substitute teacher reported as long-term has been authorized for long-term status and has not incurred a break in service.

Responsibility for accuracy in attendance reporting resides with reporting units. Procedures exist, including review and approval, which specify reporting unit verification in each of the above examples. Division of Payroll procedures are thus not initial verification, but are redundant to verification procedures which are, or at least should be, applied by reporting units.

From another viewpoint, payroll teams verification might be justified as a check over the accuracy of reporting unit attendance preparation. With the exception of verification of EYE attendance documents, verification is either redundant or ineffectual. Redundancy exists with computer edit routines which apply the same procedures as do payroll clerks. For example, computer edits verify the mathematical accuracy of reported attendance, including agreement with units scheduled. Other procedures are ineffectual because payroll clerks do not have the information with which to make an accurate determination of correctness. The most which can be done is to assure that attendance information does not conflict with the PMF. Such action assures an employee a paycheck, but not necessarily for the correct amount.

Implications of the Findings

The lack of consistency in attendance collection methodology presents a confused picture when the payroll system is viewed as a whole. At this level, there is an appearance of overspecialization which suggests costly complexity. With separate payroll processing, specialization is possible without producing significant negative effects. Standardizing attendance collection procedures would, in the aggregate, simplify payroll procedures. Were there only one payroll, this would be a critical objective. However, as long as separate payrolls exist, the cost of obtaining consistency outweighs any benefits.

The Division of Payroll expends approximately .5 person years (about $9,700) through assumption of responsibility for summarizing and verifying the mathematical accuracy of temporary, part-time payroll attendance. Recognition of procedures performed by reporting units suggests this time investment would be saved by transferring the summarization and batch totaling functions to the reporting units.

Following is a summary of the approximate distribution of the temporary, part-time payroll by type of employee:

	Number of Paychecks
Bus driver substitutes	115
Adult education teachers	330
Home instruction teachers	70
Temporary employees	615
Secretarial substitutes	30
Cafeteria substitutes	50
TOTAL	1,210

Bus driver substitutes, as a group, are already being summarized by the Division of Transportation rather than by the Division of Payroll. Procedures now performed by the Department of Adult Education are the equivalent of summarization of adult education teachers' vouchers. Thus, adding the task of transcribing attendance onto summary vouchers would not necessarily alter

preparation time. Home instruction vouchers are processed on an unsummarized basis and could continue as such. Temporary employees are widely dispersed and for any particular reporting unit would only require summarizing attendance for a few employees. Secretarial and cafeteria substitutes attendance, on the other hand, does not lend itself to reporting unit summarization, as work locations cannot be anticipated in advance. For these two groups, summarization and control is most effectively performed by the Division of Payroll.

In addition to saving .5 person years, transference to reporting units of responsibility for summarizing temporary, part-time payroll attendance would produce other significant benefits, as follows:

- Reduction in payroll housekeeping associated with handling over a thousand attendance documents each pay period. This would more than offset additional payroll time required to distribute preprinted summary attendance documents to reporting units.

- Eliminate problems payroll clerks encounter when attempting to correctly report attendance for employees with multiple positions. Location timekeepers are better equipped, informationally, to make such determinations.

- Regular receipt of preprinted summary vouchers would afford reporting units an opportunity to affirm the correctness of each temporary employee's position and salary-related data.

The Division of Payroll estimates that about 25,000 to 50,000 voucher corrections are processed annually. A sample survey of timekeepers suggests that the overwhelming majority of voucher corrections occur out of a need to correct employee attendance estimates for the last work day of the pay period. Were employees not required to estimate attendance, the volume of voucher corrections would decline substantially. However, the payroll processing timetable requires submission of attendance documents to the Division of Payroll on the last day of the pay period. This timetable provides payroll teams time to verify attendance vouchers before submitting all documents for keypunching by 5 p.m. Monday. Realignment of verification procedures would ease attendance collection time constraints, allowing for elimination of the need for employees to estimate Friday attendance. Recognizing the redundancy and ineffectiveness of these procedures would provide a basis for realignment.

Application of verification procedures by payroll teams provides a preidentification of attendance processing errors. Computer edit controls will identify errors and discrepancies, but one processing day later than found by payroll clerks. An extra day is gained for error corrections purposes. The extra day, however, is gained at the expense of examining all activity for a given attribute, as opposed to acting only upon activity identified as an error. Thus, these procedures are only beneficial to the extent that the error rate is substantial. The only item which resembles this situation is incorrect preparation of EYE summary attendance vouchers by timekeepers unfamiliar with the process. For all other items, the rate of error is too low to justify the level of payroll clerks' verification efforts.

This group of clerical verification procedures could be eliminated without an adverse effect on overall attendance processing accuracy. It can be accomplished through a combination of actions which (1) reemphasizes timekeeper responsibility for accuracy of attendance data; and (2) allows appropriate reliance on existing computer edit controls as a primary error detection mechanism. Actions taken to eliminate these payroll team steps could yield annual savings in payroll resources of about .7 person year ($16,000). The savings in time on the professional, supporting services and EYE payrolls would be sufficient to allow timekeepers until Monday before submitting attendance documents to the Division of Payroll, with enough time available for payroll teams to prepare attendance for keypunching by the present five o'clock deadline. Such a change in schedule would remove the need for employees to estimate their attendance for the last work day of the pay period and the subsequent need to correct changes in estimates.

Findings: Attendance Data Conversion

The function of phase II of the attendance processing cycle is to produce a computer tape of actual attendance as reported by employees. This attendance tape provides phase III with the attendance data needed for recording leave used and computing leave earned by employees. Attendance documents are processed in batch mode. Batch processing provides for converting attendance data from summary attendance vouchers onto computer attendance tapes on the basis of controlled groups. The use of controlled groups enables isolation of processing errors for control purposes which, overall, both facilitates aggregate processing control as well as error identification.

Obtaining control balances is the last step payroll teams perform prior to turning attendance documents over the the Division of Data Processing Operations for keypunching. Control balance categories and grouping levels differ between the payrolls. All payrolls incorporate a control over the number of attendance records plus some combination of controls over reported attendance. Control groupings incorporate at least three levels, for example, (1) location total, (2) subgroup total, and (3) grand total. Payroll teams obtain control balances by adding entries by controlled category by location, aggregating location totals to arrive at subgroup totals, which in turn are combined to arrive at a grand total by control category. Control balances are then recorded on control sheets for subsequent use in determining the accuracy of attendance processing at each stage of the payment cycle.

Once batch control balances have been recorded, attendance documents are forwarded to the Division of Data Processing Operations for keypunching onto attendance tapes. The attendance tapes are initially prepared prior to the end of the pay period in conjunction with production of the preprinted summary attendance vouchers. The information contained on the attendance tapes is the same as that which is printed on the summary attendance vouchers. Though specific information contained on attendance tapes differs among payroll groups, these tapes share a common purpose of reflecting all payroll group employees authorized by the PMF for salary payment.

The two permanent employee payrolls, professional and supporting services, utilize exception basis processing. Attendance tapes contain the number of days/hours each employee is scheduled to work and thus, is expected to account for on his/her attendance voucher. Specification of work schedules on the attendance tapes saves time during attendance processing as only exceptions to regular attendance, such as leave taken and overtime, need be keypunched. For example, it is not necessary to keypunch reported attendance when an employee works each of the ten days he/she was scheduled to work for the pay period, as the attendance tape already contains that expectation. Were the employee to take a day of sick leave, then the employee's reported attendance would have to be keypunched to adjust the attendance tape to reflect (in this example) nine days worked and one day of sick leave used.

Unlike the two permanent payrolls, there are no predefined biweekly work schedules assigned employees paid through the temporary, part-time, the EYE and the extracurricular activities payrolls. Attendance data conversion requirements of these payrolls necessitates positive basis processing, that is, keypunching all attendance reported by employees. The substitute teacher payroll also uses positive basis processing. However, attendance data conversion is accomplished not through keypunching, but rather through the use of computer optical scanning equipment. The optical scanner reads each attendance voucher and records the data onto an attendance tape.

The initial keypunching or updating of attendance tapes generates the production of attendance transaction, edit and batch control reports which the Division of Payroll uses for verifying and controlling the accuracy of attendance data conversion. Among the different payrolls, the primary focus at this point in the attendance process is the identification of errors incurred during the updating of attendance tapes. Verification of batch controls begins at the group level (usually four groups). A group which is out of balance with control totals requires, first, a checking of location totals until the ones which are out-of-balance are found, then checking the appropriate location attendance reports to locate employee(s) whose attendance is incorrectly presented. This process will identify either a keypunch error in a control field (only) or a clerical error in the control total. Another edit report presents addition errors, in which keypunched attendance does not agree with biweekly scheduled hours, and duplicate records, in which an employee's attendance is listed twice on the attendance tape. On the two permanent payrolls only, there is a dummy edit report which lists employees who, based on a match of the attendance tape with the leave file, do not have a leave record. This edit report indicates that listed employees either have no leave record or there was an error in keypunching employee's social security number or position class number. All indicated errors from these various reports are investigated and reprocessed in a second update of the attendance tape. The same edit reports produced in the first attendance update are also received with the second attendance update. The end product of this phase is an attendance tape which reflects actual attendance as reported by employees.

Implications of the Findings

The calculation of location attendance control balances by payroll teams suggests a misalignment of functions between payroll clerks and timekeepers. Timekeepers are responsible for the correctness of attendance documents. An effective mechanism for determing such correctness involves a check of mathematical accuracy. A sample survey of timekeepers found that on the two permanent payrolls over sixty percent of the timekeepers do in fact calculate attendance totals as a part of their check of the accuracy of their preparation of summary attendance vouchers.

Payroll team responsibility extends to control over the accuracy of attendance processing, determining during each operation that reported attendance is converted correctly into salary paychecks. This determination requires the use of control balances. It does not, however, require their preparation by payroll clerks.

Reassigning the function of obtaining control balances to location timekeepers presents the following advantages:

- Because timekeepers have access to both employees and supporting attendance documents, they can correctly dispose of errors detected in the course of calculating control balances. Payroll clerks, lacking such access, can only guess at the proper disposition of errors.

- The Division of Payroll would in the aggregate save .3 persons years (about $5,600). The impact on timekeepers would be negligible since (1) it appears a majority already calculate attendance totals, and (2) dispersion among all reporting locations leaves each timekeeper responsible for only a small number of total payroll group employees.

During the initial step of keypunching reported attendance, documents are batch controlled on the basis of defined groups. The error isolation process suggests that a more natural batching would occur were attendance documents batched instead by location.

Coupling timekeeper calculation of control balances with location batching presents an opportunity to streamline the batch control process by shifting to the computer the search for out-of-balance location controls. Timekeeper calculated control balances would be keypunched as the last entry of each location's attendance input. The computer, when checking the mathematical accuracy of location attendance, would match its calculated totals against control balances. Messages on the attendance edit report would be printed indicating by location whether processed attendance balanced or did not balance with control totals. Additional messages printed when a location is out-of-balance would isolate and present the transaction(s) creating an out-of-balance condition.

Timekeeper assumption of the task of obtaining control balances would also facilitate expansion of control elements to include specific leave categories. Present controls only detect errors which create a mathematical

discrepancy. They cannot identify classification errors. That is, controls will detect a keypunching error if sixteen hours of sick leave is incorrectly processed as eight hours, but will not discover an erroneous processing of sick leave as annual leave. While the frequency of such errors is low, it is inappropriate to leave to the employee the responsibility for detecting processing errors. This is a function which should reside within the attendance process itself.

Expanding control balances to include specific leave categories would be an onerous task for payroll clerks to assume strictly on the basis of the large volume of employee attendance they must process. Dispersed among location timekeepers, expansion of control elements is achievable for only a small increase in time.

Findings: Leave Accounting

The purpose of the third phase of the attendance process is twofold: first, to update employee leave balances in the leave file for leave benefits used and additional benefits earned during the pay period, and second, to adjust attendance tapes when employees report leave used in excess of balances available to them. This phase applies, in total, only to the professional and supporting services payrolls, as the full array of leave benefits is limited to employees on these two payrolls. Ten-month professional employees, while working in extended year employment assignments do not earn additional leave benefits, but they may use sick leave benefits accumulated through their regular position. Thus, modified leave accounting procedures are in effect for the EYE payroll which accept sick leave reporting and which adjust compensible hours in the event excess leave is reported. This process is not fully automated though, as payroll clerks must manually update leave file records when excess sick leave is reported. Ten-month supporting services employees may also use accumulated sick leave benefits when working in extended year assignments. However, automated leave accounting procedures have not been extended to include the temporary, part-time payroll, on which such time is reported. This gap in automated support is filled by payroll clerks, who separately process leave adjustments to record in the leave file leave reported by supporting services employees while employed in a temporary summer assignment.

The attendance tapes prepared in phase II of the attendance process contain leave reported by employees. These tapes are used during phase III to record leave benefits used in employees' leave file records. In the process, automated procedures compare the amount of leave reported to the employee's available cumulative balance, and reduce the cumulative balance for leave used. In the event leave reported exceeds the available cumulative balance, procedures provide automatically for the disposition of such excess. The manner of disposition varies with the category of leave involved, and may include allocation of excess leave from the excess category to another available category before transference to leave without pay.

At completion of the leave accounting phase, the leave file has been updated for leave reported and employee leave benefits balances have been credited for additional leave earned during the pay period. The attendance tapes have been adjusted for excess leave reported and at this point contain actual employee attendance which in phase IV becomes the basis for computation of salary payments.

Implications of the Findings

Accounting for leave reported by professional and supporting services employees through the attendance processes of their respective payrolls are effective operations. Automated procedures are efficient and appropriately complement the objectives of this phase of the attendance process.

As noted previously in Chapter 5, the same level of automated support for leave reporting provided the two permanent payrolls does extend as well to the EYE and temporary, part-time payrolls. Changes in leave policy have extended limited leave benefits to permanent employees when working in assignments paid through the EYE and temporary, part-time payrolls. However, attendance processing computer programs have not been modified, in total, to accept efficiently leave reporting by employees. The ability to use leave benefits on these payrolls is not, but should be, complemented with the capacity to accept and account efficiently for leave reported.[1]

Findings: Payment Processing

The focus of the fourth phase of attendance processing is calculation of employee paychecks based upon reported attendance. The necessary ingredients for this phase are reported attendance contained on the attendance tapes and salary rates and deduction information contained in employee PMF records. Thus, this phase begins by transferring the data from attendance tapes to employee PMF records. Concurrent with recording attendance in the PMF is a validation check that all employees reporting attendance are in fact authorized to receive salary payment. Existence of an active PMF record constitutes such authorization. An individual who does not have a PMF record or whose record is inactive is not considered an authorized employee for payment purposes, and he/she will not be paid for reported attendance until an

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[1] Chapter 7, in its analysis of the current multiple payroll structure, makes recommendations which would provide the requisite capacity to account for leave reporting by ten-month employees while working in extended year assignments.

active record is created. Employee attendance will also be rejected, in full or in part, from further payment processing if there is any discrepancy in employee position characteristics on the attendance tape as compared to the information in the PMF. All instances of disagreement are automatically resolved in favor of the PMF, as it is the sole authoritative source for employee payroll information.

A computer report is produced in conjunction with the recording of attendance to the PMF which identifies employees who for lack of an active PMF record or because of disagreement in position characteristics will either not receive a paycheck or will receive a paycheck but for less than the full amount of attendance reported. A number of individuals listed on this report have been preidentified by payroll clerks during phases I and II as requiring corrective action, and would have prompted the Division of Salary Administration, Certification and Records to investigate and attempt resolution of authorization discrepancies. A final opportunity prior to calculating and producing employee paychecks is provided for reprocessing errors and correcting authorization discrepancies. Any unresolved errors must be held for correction in the next pay period.

Implications of the Findings

The significant implications of the findings address the overall structure of the attendance process as it concerns the phasing of authorization validation procedures.

Dual authorization validation procedures are built into the attendance process. Attendance is validated against both the leave file and the PMF. This dual validation necessitates rapid error reprocessing and increases the number of computer processing cycles required to process attendance. Further, the more significant of the two checks, the one for PMF authorization, does not occur until phase IV, although the question of authorization and requisite need for resolution arises earlier in the process and is satisfied manually by payroll clerks. Thus the attendance process would benefit were the PMF authorization validation check performed in conjunction with initial attendance input during phase II.

Validation of attendance against the leave file is a procedural matter required because of the independence of the leave file from the PMF. This validation check informs the Division of Payroll of discrepancies existing between the two files which will require an adjustment of leave balances. Were the maintenance functions consolidated, as recommended in Chapter 5, there would be no information discrepancies and no need for separate validation of attendance against the leave file.

Moving the PMF authorization check forward to phase II would also eliminate a computer attendance processing cycle in phase IV which provides a second opportunity for reprocessing errors and corrections. Shifting the authorization check forward would consolidate in phase II all procedures

directed toward error identification. Thus, only one error reprocessing and adjustment cycle would be needed, namely that now provided at the end of phase II.

Conclusions

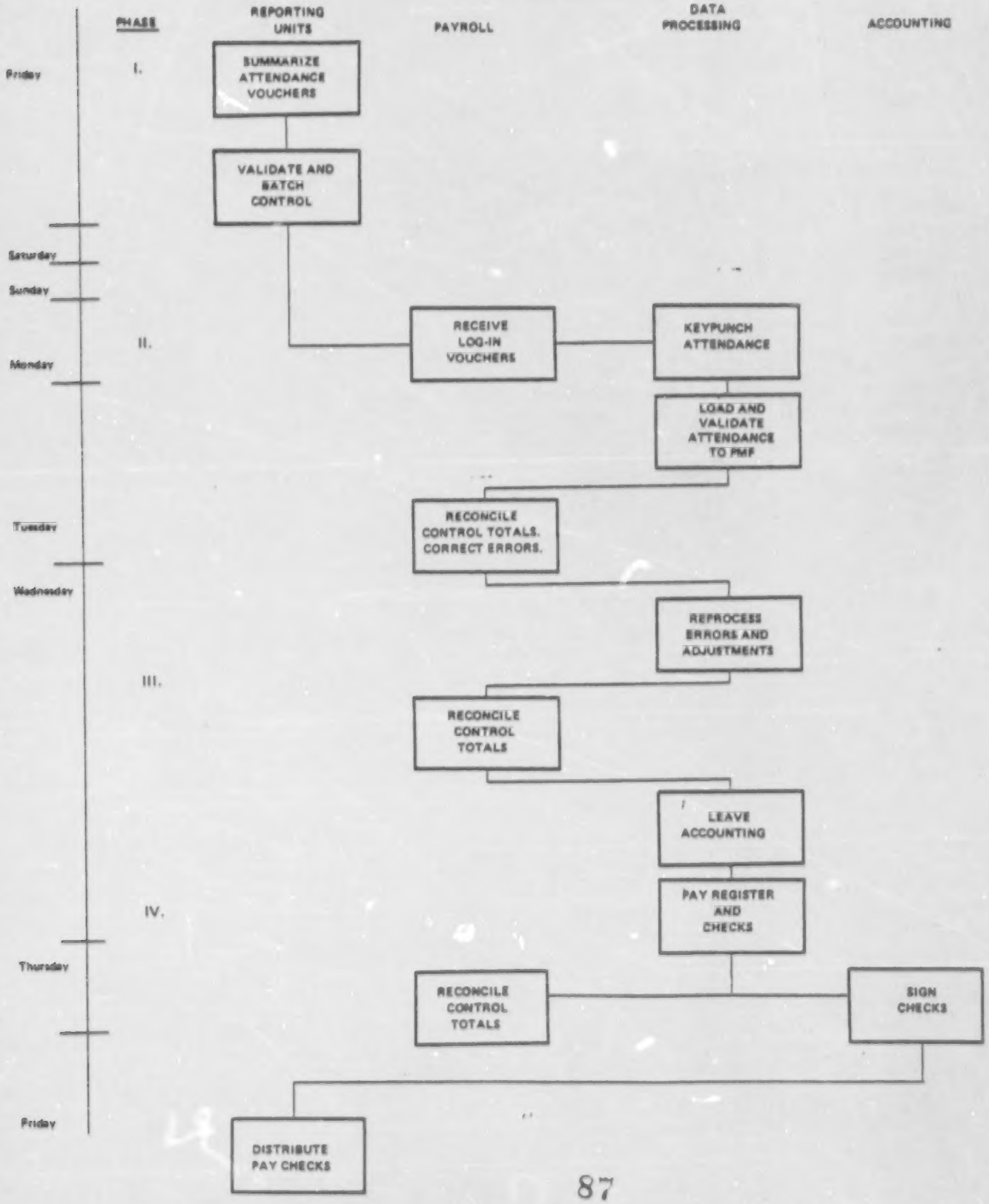
This section synthesizes the implications of the findings of this chapter into an alternative attendance processing design. Under an alternative design the attendance process would still be composed of the same four phases. However, procedures and functional responsibilities within phases would be reconstituted. Exhibit 6.2 diagrams the functions within each phase for an alternative attendance processing cycle. The changes incorporated into this design alternative are compared in the following paragraphs to the current attendance processing cycle presented in Exhibit 6.1.

The changes in phase I revolve around a shift in attendance validation procedures and batch control functions from payroll clerks to location timekeepers, and emphasize reliance on in-place computer controls for attendance edit and error identification. As stated earlier in this chapter, realignment of responsibility for this function would remove the need for employees to estimate their attendance for the last work day of the pay period and the subsequent need to correct changes in estimates. Reporting locations would submit attendance documents to the Division of Payroll Monday rather than Friday morning as is now required.

The redistribution of functions between phases II and IV constitutes a significant change in attendance processing design. The intent of the change is to move the checks forward in the attendance process for valid payment authorization and for discrepancies in position characteristics between attendance information and the PMF. The current design entails a fragmented approach to verification of reported attendance, the effect of which increases the number of computer processing cycles required to prepare attendance for payment processing. Two computer processing cycles are used to prepare an adjusted attendance tape. Then in phase IV, two more cycles are provided to record adjusted attendance onto the PMF for payment processing. This second group of two computer cycles is necessitated by the fact that attendance is not validated against the PMF until phase IV, hence a second opportunity to reprocess errors arising from PMF validation discrepancies. However, were all validation and error edit procedures sequenced together, there would only be a need to provide one computer cycle for reprocessing attendance validation and edit errors. The error correction process now provided in phase IV would be unnecessary and hence eliminated.

Under the alternative design, payroll clerks, in phase II, would log-in attendance documents as received and submit as a group to data processing for keypunching. Data conversion would include keypunching location computer batch control totals. Data conversion would be followed by recording in and validation of reported attendance with the PMF. These procedures would produce edit reports for use by the Division of Payroll in identifying and resolving attendance processing errors. The final procedure in this phase is

EXHIBIT 6.2
ALTERNATIVE ATTENDANCE PROCESSING CYCLE



the reprocessing of error corrections. Any unresolved errors would be set aside for correction the next pay period. Upon completion of this phase, employee attendance will be in a final adjusted format.

Phase III would remain as currently structured. Present procedures for accounting for leave reported function efficiently and require no fundamental design changes. Phase IV would be composed of payment processing and production of employee paychecks and related payroll reports. Computer processing cycles would proceed uninterrupted from the beginning of phase III through the end of phase IV.

As stated in the introduction to this chapter, there are six attendance processing cycles which, while conceptually similar in design, employ varying attendance processing procedures. The alternative attendance processing cycle design presented in this section approximates processing requirements of the two permanent employee payrolls more closely than processing applicable to the other four payrolls. This alternative does, however, provide a valid guide, equally applicable to these other payrolls. Chapter 7 in addressing the existing multiple payroll structure makes recommendations concerning the structure of these other payrolls which make moot any additional consideration, beyond conceptual design, of these separate payrolls within the context of this analysis.

Recommendations

The recommendations which follow focus upon two issues: the first, a realignment of attendance processing functions to effect an appropriate match of procedural responsibilities with administrative responsibilities, and second, a redesign of the attendance processing cycle to improve operational efficiency:

- Eliminate application of attendance validation procedures by the Division of Payroll through a combination of:
  - Reliance on reporting unit administrative authorization and attendance validation responsibilities
  - Reliance on in-place computer controls for attendance edit and error identification; thus enabling
- Revision in scheduling which would set a new deadline of the Monday following the end of a pay period for reporting unit submission of attendance documents to the Division of Payroll
- Restructure the attendance batch control process by:
  - reassigning from the Division of Payroll to reporting units responsibility for taking batch control totals

- defining reporting location as the appropriate level for batch controlling attendance data

- extending batch processing control elements to include controls over postings to individual leave categories.

o Assign to individual reporting units responsibility for summarizing for the Division of Payroll the attendance of its respective employees included on the temporary, part-time payroll, exclusive of secretarial and cafeteria substitute categories.

o Redesign the attendance processing cycle on the basis of the alternative design presented in Exhibit 6.2.

Implementation of the above recommendations offers the Division of Payroll an opportunity to reduce clerical resources dedicated to attendance processing by about two person years for an estimated aggregate savings, including fringe benefits, of about $31,000. Further, redesigning attendance processing on a basis which, at a minimum, reduced the number of computer processing cycles would save at least 50 hours of computer machine time for an equivalent annual savings of $32,000.

Chapter 7

MULTIPLE PAYROLL CYCLES

Introduction

The attendance process is segmented by employee groups. There is, in fact, not one attendance process but six separate attendance processing cycles comprised as follows

1. Professional payroll: Composed of teacher, administrative and supervisory positions. Biweekly pay dates, producing an average of 6,900 paychecks.

2. Supporting services payroll: Composed of all permanent and conditional support positions. Biweekly pay dates, producing an average of 5,500 paychecks.

3. Temporary, part-time payroll: Payroll includes temporary employees, adult education and home instruction teachers, bus, cafeteria and clerical substitutes, lay readers, NIH instructors and others. Biweekly pay dates, producing an average of 1,100 paychecks.

4. Substitute teacher payroll: Composed of a pool of individuals authorized to substitute for regular teachers. Biweekly pay dates, producing an average of 740 paychecks.

5. Extended year employment (EYE) payroll: Comprised of ten-month professional employees working beyond their regularly scheduled work year. Payroll includes summer school teachers, workshop participants, teacher specialists, and other special projects personnnel. Biweekly pay dates during July and August. During remainder of year, pay dates occur only after extended holidays. An average of 1,900 paychecks are produced biweekly during July and August.

6. Extracurricular activities (stipend) payroll: Composed of employees, generally teachers, sponsoring school-related activities requiring time beyond their regular duty day. Three pay dates annually in December, March and after June 30, producing an average of 1,375 paychecks.

In addition to the six employee payrolls, there is an end-of-month supplemental payroll which is used for processing handwritten checks, including semiannual paychecks to employees on academic leave.

A major factor contributing to the evolvement of separate payrolls was the lack of capacity of former computer equipment. The number of computer punch cards which would have had to be processed at one time to pay all employees together far exceeded the capacity of computer equipment. Computer limitations were overcome by staggering payroll cycles.

Four payrolls operate on a biweekly basis. Pay dates are staggered to even the workload. On alternating Fridays, the two permanent payrolls--professional and supporting services--share common pay dates with the nonpermanent payrolls--temporary, part-time and substitute teachers. This distribution of pay cycles means that at least two payrolls are always in process each week. The EYE payroll operates biweekly during July and August, adding a third pay cycle every other week to the payroll processing schedule. The six payrolls result, over the course of a year, in processing a total of 122 payment cycles. Thirty-six payment cycles are affected by holiday schedules. That is, the normal time alloted for attendance processing is compressed into a shortened schedule to compensate for working days lost to MCPS holidays.

Advancements in computer technology since initial design of the payroll system, have eliminated the limitations which originally required staggering pay cycles. In 1976, payroll files were converted from a computer punch card system to magnetic tape, an input medium which is fully capable of processing a large volume of activity. However, the basic attendance processing computer programs in use today are still those originally designed for use on older equipment. These programs have never been modified to take advantage of technological advancements. Thus, while an initial limitation giving rise to separate payrolls has been removed, it has been replaced by a limitation imposed by outdated computer programs designed for a system of separate payrolls.

Each payroll functions as an independent, stand alone system. Separate payroll teams are dedicated to each payroll; specialized employee attendance vouchers are used to capture attendance data; independent daily control verification totals are maintained; and each payroll is subjected to individualized computer processing. While each payroll is functionally distinct, they are not in fact wholly independent systems. All payrolls use the same Personnel Master File (PMF) and other payroll files and share computer software applications. The different payrolls are able to use the same files through the use of payroll group codes and separate file maintenance procedures. Payroll codes allow for the treatment of the PMF as if it were six separate files rather than one. Three computer programs are used to process employee attendance. The professional, supporting services, temporary, part-time, EYE and monthly supplemental payrolls share one program. Separate programs have been developed to process the substitute teacher and the extracurricular activities payrolls. Distinctions among the five payrolls using the same program are accommodated through the use of branches within the basic program. For example, a branch exists to process professional employees leave usage which, since temporary employees are not

subject to leave benefits, is not referenced when processing temporary payroll attendance. All seven payrolls use the same program to produce paychecks, pay register and payroll distribution reports.

Under current MCPS policy, there are characteristics among the payrolls which distinguish certain employee groups from others. Exhibit 7.1 presents basic distinguishing characteristics and reflects the extent of similarity/dissimilarity between payrolls.

Exhibit 7.1

PAYROLL EMPLOYEE GROUP CHARACTERISTICS

Employee Group	Defined Work Schedules	Leave Benefits	Flexible Salary Distribution
Professional	yes	yes	no
Supporting Services	yes	yes	no
Temporary Part-time	limited	limited	partial
Substitute Teachers	limited	no	yes
Extended Year Employment (EYE)	partial	limited	partial
Extracurricular Activities	partial	no	partial

Attendance processing procedures differ between payrolls as employee group distinctions have created specialized processing. The importance given to employee group distinctions has been a contributing factor to the historic definition of payrolls and the evolution of the existing multiple payroll structure. Less importance has been attached to common characteristics among employee groups.

The purpose of this chapter is to evaluate the continuing need for the current multiple payroll structure giving equal weight in the analysis to the implications of both common and distinguishing payroll characteristics. The analysis will follow two premises: first, that if the common ground between employee groups and between the payrolls through which they are paid is

overriding, then independent payroll processing is not required, and second, that if distinctions between employee groups and their respective payrolls is substantial, then independent payroll processing is appropriate.

Findings: Common Payroll Employee Group Characteristics

This section focuses on identifying characteristics shared by employee groups, who under the current multiple payroll structure, are paid through different payrolls. The importance of this analysis lies in the potential that an emphasis on common characteristics holds for redefining existing payrolls along lines which combine like employee groups into similar attendance processing and recordkeeping systems.

Defined Employee Work Schedules

The professional and supporting services employee groups share in equal measure the characteristic of defined employee work schedules. Each employee's work schedule in these two groups clearly specifies when and where an employee will work, and the amount of time each is accountable for in a given pay period. The ability to anticipate compensible employees, when and to what extent they will be compensated, and when they are working has a substantial impact on development of attendance processing procedures. Common attendance collection procedures on the professional and supporting services payrolls incorporate this characteristic, with both payrolls using preprinted attendance collection forms, distributed to assignment locations, which specify for each employee the time for which they are held accountable. Ensuing attendance processing is directed toward controlling adherence of and recording exceptions to defined work schedules.

The employee groups on the other four payrolls share, in reverse fashion, commonality of this characteristic. Employee work schedules are fluid and can vary from one pay period to another. Attendance collection and processing procedures on these four payrolls accommodate the lack of defined work schedules by processing collected attendance only upon positive employee reporting of actual hours worked.

Leave Benefits

Professional and supporting services employees have available to them the full array of leave benefits. Leave file records are maintained for each group which account for their leave benefits. Attendance processing for these two respective payrolls incorporate automated leave accounting procedures to capture leave reported on employee attendance vouchers.

Ten-month professional and supporting services employees are entitled to use their sick leave benefits earned through their regular positions while they are working extended year summer assignments. Professional employees working extended year assignments are compensated through the EYE payroll and supporting services employees are paid through the temporary, part-time payroll. As leave benefits do not otherwise accrue to employees on these payrolls, accounting for its use is accommodated through modified computer/manual procedures. While procedures on these two payrolls differ with leave accounting procedures on the professional and supporting services payrolls, all four payrolls share a common need to capture leave reported by ten-month professional and supporting services employees and to record its use in respective employee leave files.

Encumbrance Accounting

Only employees on the professional and supporting services payrolls are subject to encumbrance accounting. Encumbrance accounting is facilitated by the characteristics of defined work schedules. Knowledge of positions and work schedules enables the acquisition of information and application of controls necessary for encumbrance accounting. This information includes budget authorized positions and salaries, specified work year and biweekly units scheduled. Thses two payrolls use the same procedures to acquire, control and process encumbrance accounting related data.

Common Employees

The professional, EYE and extracurricular activities payrolls have in common the same group of employees. Only professional employees are authorized to work in assignments paid through the EYE payroll. Extracurricular activity sponsors are generally professional employees. Thus, while these three payrolls provide compensation for different types of activities, they are all drawn from a common group of employees.

Attendance Processing

Overall, the professional and supporting services payrolls share, in all material respects, common attendance processing methodology. The attendance processing design diagramed in Exhibit 6.1 in Chapter 6 equally describes both payrolls. Both payrolls summarize similar attendance information, apply the same control procedures and exception processing methodology, calculate paychecks and distribute salary and fringe benefits costs to the accounting records on a similar basis.

The temporary, part-time and substitute teachers payrolls share certain similarities between their respective attendance processing cycles. Both payrolls specify employee reporting of actual hours worked, apply similar control procedures and process attendance on the basis of positive attendance reporting.

The EYE and extracurricular activities payrolls share a need, particular to these two payrolls, of accounting for employee attendance by activities as well as by budget salary distribution. Attendance collection procedures specify employee time reporting by assigned activities. Compensation is authorized on an activity basis. For each activity there is a specified maximum number of hours or dollars up to which an employee may be paid. Automated control procedures on both payrolls incorporate this feature by monitoring cumulative hours reported or dollars paid; and when the authorized maximum is reached,the controls preclude an employee from receiving further compensation.

All payrolls use the same computer program for producing employee paychecks and the pay register.

Implications of the Findings

The analysis of characteristics common among employee groups reflects substantial common ground on which a basis for restructuring existing payrolls may be built. The implications of this finding apply most especially to the professional and supporting services payrolls. Work schedules are similarly defined and are controlled by the same set of criteria; that is, subject to position control, and annual and biweekly reporting schedules. Each group receives similar leave benefits and are subject to the same encumbrance accounting information requirements.

The professional and supporting services payroll recordkeeping and attendance processing systems, in keeping with the commonality between the two types of employees, are nearly identical. Like controls are maintained over payroll information in employee PMF records and leave file records. In fact, nearly, identical payroll information is maintained on both employee groups under separate, but parallel systems. Attendance processing systems are identical in all material respects. As the historic limitation against combining these two payrolls imposed by previous older computer equipment no long, exists, the findings strongly support, on the basis of common characteristics, a plan to combine the professional and supporting services employees under consolidated payroll recordkeeping and attendance processing systems.

The EYE and extracurricular activities payrolls share an important characteristic with the professional payroll, namely that all three payrolls draw from the same pool of professional employees. For ten-month professional employees, the EYE payroll is literally an extension of the professional payroll, which takes effect when they work in assignments occurring outside the parameters of their defined annual work schedule. The extracurricular

activities payroll provides supplementary pay to professional employees who sponsor extracurricular school activities. With each of these three payrolls functioning as an independent system, a professional employee can be receiving their aggregate compensation through three payrolls. Attendance is submitted on different time vouchers and independent payroll processing has the effect of treating an individual as if he/she were two or three separate employees. The informational needs connected with the types of activity associated with each of these payrolls induce different attendance processing procedures, however, the significance of these differences (addressed in the succeeding findings) must be weighed against the common pool of employees from which these three payrolls are drawn. The fact that the same employees are found on all three payrolls presents the potential of consolidating the professional, EYE and extracurricular activities payrolls into a single payroll premised on the combined reporting on a single attendance voucher of the various types of professional employee activities.

The same relationship found of ten-month professional employees reporting regular and extended year attendance on separate payrolls, exists as well with ten-month supporting services employees who, in addition to their regular school year assignment, work during the summer. While working during the summer, ten-month supporting services employees report their attendance and are paid through the temporary, part-time payroll. Applying the same reasoning to these employees as applied above to professional employees on extended year assignments would suggest that supporting services employees continue reporting attendance on their regular payroll when working summer assignments rather than reporting attendance during that period of the year on the temporary, part-time payroll.

Employees on the temporary, part-time and substitute teachers payrolls share common characteristics which implies that a basis exists on which to consoldiate these two payrolls. These employees do not receive leave benefits or other fringe benefits such as medical insurance. Their work schedules are not defined in terms of annual or biweekly schedules of hours to be worked. Both payrolls contain pools of authorized employees who work only as the need arises and who report only actual hours worked. This commonality of employee characteristics is reflected in similar attendance processing procedures between the two payrolls. Both payrolls employee positive attendance collection and processing methodology. Employees need not account for a stated number of hours, but report only actual time worked. Provision for leave accounting is unnecessary, since these employees do not earn leave benefits.

In summary, applying criteria which emphasizes common characteristics among employee groups indicates that a basis exists to replace the current multiple payroll structure with a payroll system that consolidates current payrolls which, in response to common group characteristics, share similar attendance processing methodology. The professional and supporting services employees share nearly identical characteristics. A single payroll could serve the needs of both employee groups. Likewise, the common characteristics between temporary employees and substitute teachers could serve as a basis for designing a single payroll through which these employees could be compensated.

Analysis of group characteristics also implies that redefinition of payroll employee groups can contribute to consolidating existing payrolls. The EYE and extracurricular activities payrolls could be absorbed into the professional payroll by designing attendance collection procedures which capitalize on the fact that these three payrolls are composed of professional employees.

Findings: Distinctive Payroll Employee Group Characteristics

The preceding findings analyzed payroll employee group characteristics for common ground and found instances of significant common characteristics among employee groups complemented by similar payroll attendance processing methodology. The implications of the findings were that a basis exists, through recognition of common employee characteristics, to restructure the current payroll system. This section analyzes employee groups in terms of characteristics distinctive to particular groups. The importance of this analysis lies, first, in the identification of distinctive characteristics and, second, in the implications these characteristics have on payroll attendance processing procedures. This analysis evaluates distinctions between payrolls which the preceding findings suggest can be combined.

Professional and Supporting Services Employees Payrolls

A comparison of the procedural flow of the professional and supporting services payrolls reveals strikingly similar operations. In fact, there are only minor differences between the two operations. The comparison suggests these two payrolls would be excellent candidates for consolidation. There are, nonetheless, certain employee group distinctions which need to be addressed.

Salary schedules: Separate salary schedules apply to each employee group. With respect to payroll processing, the only distinction which must be accommodated is the restriction of overtime benefits to only supporting services employees. All other salary-related differences affect personnel accounting, but do not impact payroll processing. Limiting overtime compensation to supporting services employees only can be accomplished effectively through the use of employee group codes, which would identify employees eligible for overtime compensation and those precluded from reporting overtime.

Leave benefits: Leave benefits are nearly identical for both groups. Distinctions which arise from separate association contracts include leave advancement to supporting services employees only after conference of permanent status, limitation of one year for receipt of disability benefits applied to supporting services employees and different sick leave bank contribution assessments and benefits criteria. Again, each of these distinctions impacts personnel accounting, but not payroll processing. The use of employee codes can be used in personnel records to identify employees for application of special procedural criteria.

Employee benefits: Employee benefit options vary between the two groups. They also vary within each group. Adapting to the additional array of options can be accomplished in a manner similar to procedures now used within each payroll.

Attendance reporting methodology: Attendance processing between these groups is, in all material respects, the same. Different attendance voucher and summary attendance voucher formats are used. However, the same basic attendance data is gathered on both payrolls. The primary distinction involves exception reporting by full-time professional employees while part-time professional and all supporting services employees use positive attendance reporting. This distinction does not require special accommodation under a combined payroll as it already exists within the current professional payroll. The same summary attendance vouchers can be used for all permanent employees without any change in data collection procedures. Payroll reports which apply to only one group, such as sick leave bank reports and overtime distribution reports can, through computer sort codes, continue to be prepared.

Control balances: Payroll records and attendance processing control balances differ only as to the existence, or absence, of a particular type of data element such as overtime. Combining these two payrolls would effectively combine control balances without the need for changes in procedures or underlying methodology.

Information reporting: As mentioned above, computer sort procedures can readily accommodate special reporting needs. Overall, existing distinctions between the supporting services and professional payrolls are not significant and would require little in the way of adaptation. None are of a magnitude which would preclude combination of these two payrolls.

Ten-month professional and supporting services employees may also work during the summer. These employees are paid out of different payrolls when working beyond the regular school year. Professional employees work under a formal extended year employment program and are paid through a special EYE payroll. There is no formal program applicable to supporting services employees; however, those who do work extended assignments during the summer are paid through the temporary, part-time payroll.

There are characteristics of the EYE payroll which differ from the professional payroll, although employees may be performing the same tasks performed in their regular position. These differences include

1. A requirement for activity reporting. The same employee can be involved in several activities, each of which requires separate attendance reporting.

2. Salary rates and budget account distribution differ from an employee's regular position, even if the EYE assignment is a continuation of an employee's regular duties.

3. Though work schedules may be identifiable, they are not defined for payroll control and reporting purposes.

4. Salary authorization control is effected on the basis of total activity hours reportable rather than on stated biweekly work schedules.

Incorporating EYE into a combined professional/supporting services payroll would require recognition of EYE payroll distinctions. Attendance collection procedures would have to provide the capacity to report time by EYE activity codes and would have to specifically identify such time as extended year activity subject to different salary rates and budget account distribution. Processing controls would have to include specialized procedures to control the maximum hours for which employees may be compensated.

Ten-month supporting services employees are subject to different attendance reporting requirements when working in summer assignments. Summer assignments are not defined by biweekly work schedules, nor are they subject to the same position controls as apply to regular school year assignments. Attendance processing utilizes positive rather than exception basis methodology. Summer assignments are subject to different budget account distribution and may entail different salary rates. Attendance collection procedures of a combined payroll would have to provide for separate identification of summer assignments so that related attendance is not subjected to processing controls applicable to only regular assignment positions.

The extracurricular activities (stipend) payroll involves specialized procedures not associated with the professional or supporting services payrolls and includes the following characteristics:

1. Compensation may be determined on an hourly rate basis, a per diem basis, or on a stated stipend amount.

2. Payment for certain activities requires attendance reporting while payment for other activities does not.

3. Stipend payments are processed only three times each year.

4. Like the EYE payroll, this payroll requires separate activity reporting and controls total authorized hours by activity. This payroll also requires a minimum number of hours to be worked before payment can be made.

5. This payroll involves more interaction with the Personnel Master File than do other payrolls.

The characteristics of this payroll makes it difficult to incorporate within another payroll structure. This payroll requires both biweekly attendance input, plus the capability to input directly a stated stipend payment amount. Payments are processed only three times a year and must be individually approved by principals before being processed.

Accommodating these needs requires a modified approach. Collection of biweekly attendance could be folded into permanent employee attendance collection procedures. Through this method attendance could be recorded in the PMF without the need for a separate collection system. The remainder of

the payroll process, including authorization controls, entering of flat stipend amounts and principal approval, could continue as a separate entity. The complexity of attempting to incorporate special characteristics into an umbrella payroll would be outweighed by the fact the authorization to pay procedures occur only three times a year. Once processed, stipend payments could be automatically added to employees' regular paychecks.

Temporary, Part-time and Substitute Teacher Payrolls

The temporary, part-time and substitute teacher payrolls share similar characteristics which, in particular, distinguish these payrolls from the two permanent payrolls. The two most prominent of these characteristics are (1) nondefined work schedules and (2) the fact that these employees do not earn leave benefits.

The lack of a definable work schedule requires that attendance on these two payrolls be processed on a positive basis. That is, employees are compensated only on the basis of hours reported. There is no predetermined schedule of hours for which these employees are accountable. Exception basis processing, as applied on the two permanent payrolls, is not feasible on these payrolls. There is no need to incorporate leave accounting procedures as these employees do not earn leave benefits. Nor, are either of these payrolls subject to encumbrance accounting.

In part, a similar need exists for flexible salary distribution capabilities. The temporary, part-time payroll includes clerical substitutes who like substitute teachers require special procedures to allocate salaries to the proper budget accounts. The temporary payroll also includes bus driver and cafeteria substitutes. Like the substitute teacher payroll, there is a pool of eligible employees, only a selection of whom work in a given pay period.

The commonality of characteristics suggests that these two payrolls could be combined for attendance processing. A plan for combination would have to recognize certain distinctions as follows:

1. Substitute teachers are authorized to work no more than a seven hour day, whereas temporary employees may work eight hours and qualify for overtime compensation. A combined payroll would require a selective control which limited substitute teacher daily attendance reporting, while allowing temporary employees to report eight hours and, as required, to report overtime.

2. A substitute teacher may qualify for compensation at higher long-term substitute rates under specific criteria. A combined payroll would require continuation of procedures which monitor loss of long-term status due to a break in service.

3. Although attendance processing methodology is similar, attendance forms and processing programs are substantially different. Development of a standardized approach would be a prerequisite for combination to take place.

A plan for combining these two payrolls with the two permanent payrolls would involve substantial programming complexity to accommodate basic group differences. The most significant difference relates to work schedule controls. This difference effectively limits options available for attendance processing methodology. The characteristics of the two permanent payroll groups present a basis for defining and holding employees accountable for a known work schedule. The capacity to specify biweekly work schedules allows attendance processing methodology to function on an exception basis.

Processing activity revolves around recording exceptions to work schedules, that is, leave usage. The position characteristics of temporary and substitute teachers do not lend themselves to exception reporting. There is little to no basis on which to determine work schedules in advance. In fact, from a personnel management standpoint, it may be undesirable to make such an attempt.

A plan which attempted to combine these disparate employee groups would require the capacity to process attendance both on an exception basis and a positive basis. Computer programming which would adapt to both reporting bases would involve complex operations which in the end would be processing two payrolls within an umbrella payroll structure.

Implications of the Findings

While there are certain characteristics which differ between professional and supporting service employee groups, there is no single distinction which would preclude combining the payrolls for these respective groups. Existing distinctions can readily be accommodated through the use of employee type codes. Such codes would identify employees subject to special conditions for application of requisite procedures.

Incorporating the EYE payroll and supporting services employees working summer assignments into a combined professional/supporting services payroll is feasible, but would require specialized procedures which address characteristics of summer employment not associated with position assignments during the regular school year. Combining attendance collection requires the capacity to separately identify regular assignment reported attendance from extended year assignment attendance. This requirement must be satisfied because attendance under these respective assignments is subject to specialized attendance processing controls and different pay rates and salary distribution. Introducing two sets of processing controls at selected points in a single payroll attendance processing cycle would increase the complexity of payroll computer programming. Extended year assignment attendance would be excluded from controls applicable to regular assignments and subject to a control over the maximum hours for which an employee may be compensated.

The existence of the EYE payroll and the need during the summer for supporting services employees to report attendance through the temporary, part-time payroll are in large measure functions of personnel policy which converted

many employees to ten-month status. Changing this policy is an alternative approach which effectively eliminates EYE as a payroll structural issue.

Incorporating extracurricular activities attendance reporting into a combined professional/supporting services payroll can be accommodated through use of reformatted attendance vouchers which would provide space for reporting time incurred in sponsoring activities subject to hourly/per diem compensation (class I and class II activities). Distinctions associated with stipend payment processing are particular to this payroll. Attempting to address these distinctions within a biweekly professional/supporting services payroll would add complex computer programming functions to accommodate a payment process which only operates three times a year.

Two distinctions need to be addressed to effect a consolidation of the temporary, part-time and the substitute teachers payrolls, both of which apply to substitute teachers. First, there must be a processing control which limits substitute daily reporting to no more than the regular seven hour school day. Second, provision must be made to verify a substitute teacher's status as an authorized long-term substitute. Reporting unit review of attendance vouchers provides a first line control over these two conditions. However, incorporation of automated controls into a combined payroll would assure continuation of the same level of control which now exists on the separate substitute teacher payroll.

Conclusions

The analysis of characteristics among employee groups shows that maintaining separate payrolls for each employee group is not necessary. Emphasizing the existence of common characteristics provides a basis on which to replace the current multiple payroll structure with a consolidated payroll system. There are, however, chracteristics distinctive to employee groups which limit the capacity to combine payrolls or which impose special requirements to accommodate a consolidation.

Exhibit 7.2 presents an alternate payroll structure which balances the effects group characteristics have on attendance processing methodology and procedures. The alternate payroll structure provides for two attendance collection cycles, three processing cycles and a single payment cycle. There would be two payrolls--a permanent employee payroll and an other employee payroll. The permanent employee payroll would be comprised of the existing professional, supporting services and EYE payrolls plus ten-month supporting services employees working summer positions now paid through the temporary, part-time payroll. The permanent employee payroll would also be used for collecting biweekly attendance from employees sponsoring stipend Class I and II activities (hourly and per-diem based). The other payroll would be comprised of the remainder of the temporary, part-time payroll and the substitute teacher payroll. Lastly, the triannual stipend authorization process would function separately.

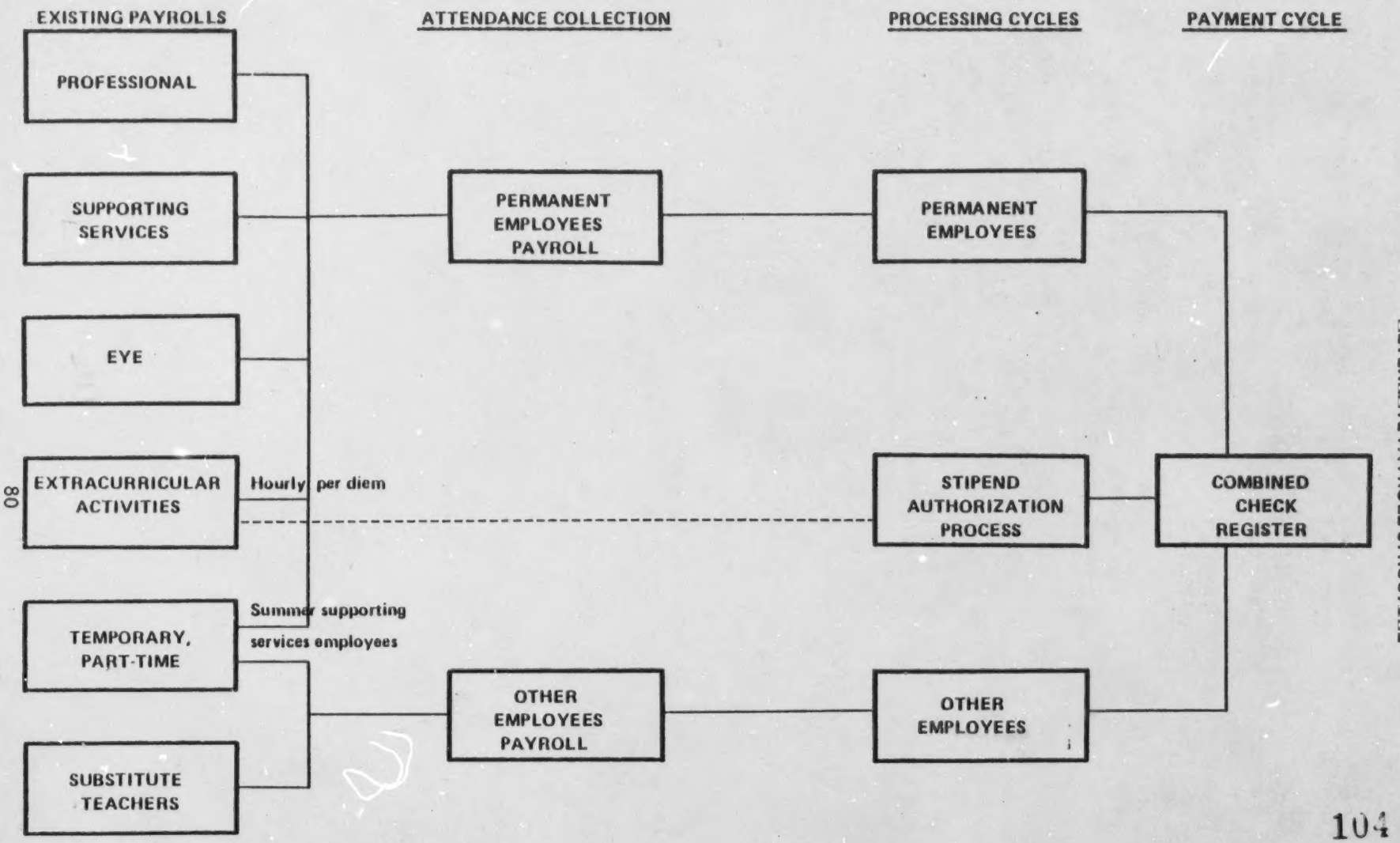


EXHIBIT 7.2
ALTERNATE PAYROLL STRUCTURE

Attendance Collection

Permanent Employee Payroll

Attendance collection procedures would begin with the use of preprinted employee attendance vouchers and timekeeper summary attendance vouchers. Employee vouchers would specify the number of hours each employee is accountable for in a pay period. Voucher format would gather leave usage, including leave without pay, and compensable overtime. Space would also be provided to report, by activity code, hours worked in extended year employment positions and sponsored extracurricular activities. Activity codes would identify the activities to which the hours related. All time, except per diem stipend activity, would be reported in hours. Full-time professional employees would discontinue reporting absences in full or half-day increments. All attendance would be summarized by timekeepers onto preprinted summary attendance vouchers, which in turn would be transmitted to the Division of Payroll.

Other Employees Payroll

Temporary and substitute employees would report their daily hours worked on attendance vouchers designed for reading by computer optical scanning equipment. Separate vouchers would be prepared for each work position or substitute location. Vouchers would also provide the capability to specify special budget account distribution numbers when necessary to override regular account distribution. Providing this capability would, in particular, eliminate the current need for the Division of Payroll to separately accommodate special budget distribution of substitute teachers hours. Individual vouchers would be sent to the Divison of Payroll under a timekeeper prepared transmittal form used to protect against document loss during delivery. Transmittal forms would specify total vouchers transmitted and total hours reported. This information would be used during processing for computer control purposes.

Attendance Processing

The biweekly attendance reporting pay periods for the two payrolls would alternate pay period ending dates. That is, the permanent employee payroll would end on one Friday and the other employee payroll would end on the following Friday. On this basis, attendance processing for the two payrolls would alternate between weeks. By alternating processing weeks, the Division of Payroll would have the flexibility to share staff assignments between payrolls. Distributing processing activity over a two week period would reduce the a need to fully staff separate payroll teams.

Permanent Employee Payroll

Employee attendance would be processed on an exception basis. That is, only exceptions to the regular work schedule would require keypunching. Exceptions include leave usage, noncompensable absences and overtime. EYE and stipend reporting would also necessitate data entry. Combining the two largest

payrolls will create higher peak activity loads for data conversion than currently exist. Alternate week processing of professional and supporting services payrolls now consumes an average of 25 and 30 hours, respectively, in weekly keypunching. Combining these payrolls would increase that workload to 55 hours every other week. A partial trade-off will occur through the proposed elimination of temporary employee voucher keypunching. Eliminating temporary employee voucher keypunching will introduce some flexibility for adjusting overall data conversion schedules. It will not totally offset the effects of peak loading a new permanent payroll would create. A direct answer to data entry peak loading is implementation of a distributed system network, as recommended by the Task Force on Long-Range Planning for Future Use of Computer Technology. A distributed system network would disperse attendance data entry among reporting locations. Until this long-range plan is implemented, data conversion operations would have to rely, as they do now, on temporary keypunch operators to meet the keypunching needs of a new permanent employee payroll.

The EYE and extracurricular activities segments would not substantially affect data conversion. Each employee's attendance would require keypunch entry, but there would be only a slight effect on peak loading. Generally, EYE assignments occur outside the regular work year. EYE processing would merely replace attendance reporting from ten-month employees regular positions. Biweekly stipend attendance processing is minimal and requires less than thirty minutes to keypunch. The processing cycle would resemble that now in effect for the separate professional and supporting services payrolls. Additional procedures would be introduced to exercise special control over EYE attendance, specifically, to limit aggregate compensation to authorized levels. The proposed development of a personnel/payroll data base will simplify required programming modification. Extracurricular activity attendance would only be recorded in the data base. Final processing would occur in a separate cycle operating as now on a triannual basis. Lastly, including professional and supporting services employees extended employment assignments on this payroll will provide simplified access to employee leave information and would thus eliminate present reliance on special manual procedures for recording and controlling sick leave usage in summer assignments.

Other Employees Payroll

Employee attendance processing methodology would be based on positive attendance reporting. This basis would acknowledge the inability of predetermining employee population and work schedules. Processing would occur over an elongated two week period, with the bulk of activity occurring in the week between permanent employee payroll processing. While processing would not require a full two weeks, the extended period offers a distinct advantage of providing a longer period to resolve employee authorization discrepancies prior to payment. The fluidity of the work force on this payroll creates a higher level of authorization problems. Allowing additional time for the Department of Personnel Services and the Division of Payroll to correct discrepancies will aid processing efficiency and improve the accuracy and timeliness of employee paychecks. Two week processing turnaround also provides a basis for this payroll to interface with the permanent employee payroll for payment purposes.

The primary controls limiting substitute teacher daily reporting to seven hours and for assuring authorization for substitute teacher eligibility for long-term status resides with timekeepers and unit managers. It would be advisable, however, to include processing safeguards to assure actual application of controls over substitute teacher time reporting. Programming complexity would increase some, however, imbedding these controls within the computer program will improve the accuracy of substitute teacher salary compensation.

Payment Cycle

The two biweekly payrolls and the triannual extracurricular activities authorization process will merge together into a single payment cycle. The current 134 pay dates would be reduced to a maximum 27 pay dates each year. Each employee would receive a single biweekly paycheck containing compensation from all sources. There would no longer be separate paychecks for each employment position. The payment cycle would operate under the following illustrative timetable:

Payroll	Pay Period	Processing Cycle	Pay Date
Other employees	9/28-10/9	10/12-10/23	10/23
Permanent employees	10/5-10/16	10/19-10/23	10/23

Consolidating payrolls into a single pay date will affect check distribution clerical resources in the Division of Accounting. The total number of paychecks to be distributed will decline through elimination of existing multiple paychecks. However, all checks will be distributed over one rather than the current two pay dates. Clerical time will not increase, but will be shifted into one week with no time spent in nonpay date weeks. A corresponding shift in work assignments would accommodate the peaking effects of check distribution under a single pay date plan. Implementation of a voluntary direct deposit program, as discussed in Chapter 9, would also mitigate the effects of a combined pay date.

Benefit/Cost Analysis of Alternate Payroll Structure

Attempting to assign a monetary value to the potential benefits of an alternate payroll is a difficult proposition. This alternate is an outline for restructuring the multi-payroll system. Actual development requires many decisions and options, the resolution of which affect final structural design and efficiency. For decision-making purposes, however, an estimate of cost savings is necessary.

Exhibit 7.3 presents an estimate of cost savings associated with the alternate payroll structure with a comparison to development costs. Certain necessary assumptions were made. Because other recommendations in this report impact achievable payroll system efficiency, an attempt was made to hold constant the effects of such recommendations so that cost savings would reflect only the effects of structural change. An assumption was also made concerning the current state of programming efficiency. Computer machine time estimates are derived from programming methodology known to be inefficient and which are scheduled for replacement. However, they provide the only basis on which to calculate savings associated with consolidating payrolls. Total achievable savings related to improvements in programming efficiency are not necessarily captured in the cost analysis because technical programming design will not be defined until development of a replacement system actually begins. Thus, the cost savings identified below may understate actual achievable savings from consolidating payrolls.

The cost analysis does not include the impact consolidating payrolls will have on Division of Payroll staff resources. An estimate of savings in staff time is incorporated into an overall evaluation of division staffing contained in Chapter 10.

It is assumed that development of an alternate payroll structure will be incorporated into the design for replacement of the current payroll system and that the costs would be absorbed within the development budget estimated by the Task Force on Long-Range Planning for Future Use of Computer Technology. Lastly, projected cost savings do not necessarily translate directly into budget savings. Savings in computer costs do represent an opportunity to reallocate scarce computer resources to other functions, which is equally important as direct monetary savings.

Replacing the present multi-payroll structure with an alternate structure consisting of two payrolls would yield a projected annual savings of $284,000. A more significant fact reflected in Exhibit 7.3 is that this cost savings would, without reference to other derivable benefits, pay back the cost of investing in a new payroll system in slightly more than a year. The immediacy of payback strongly commends the underlying soundness of such a developmental investment and more than meets the criterion in the MORE data processing report that new systems development should be undertaken if payback is less than three years.

Other benefits of the alternate payroll structure are that it

1. Recognizes and takes advantage of common characteristics of employees groups

2. Reduces the total number of paychecks issued by discontinuing the practice of paying employees separately for each employment position

3. Resolves the issue of underwithholding of income taxes, addressed in Chapter 8, by combining compensation from all sources into a single paycheck

Exhibit 7.3

ALTERNATE PAYROLL STRUCTURE PROJECTED
COST SAVINGS AND INVESTMENT PAYBACK PERIOD

Reduction in annual computer attendance processing time	455 hours
Projected annual cost savings[1]	$284,000
Estimated cost to develop a new payroll system[2]	$326,000
Investment payback period	1.1 year

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[1]Projected annual savings is derived from an estimated monetary valuation of $625 for one hour of computer machine time. This hourly rate was derived by dividing total annual available computer machine hours into the total 1982 fiscal year budget for the Department of Management Information and Computer Services, adjusted for inclusion of $50,000 annual leasing costs of computer hardware to be installed after July 1, 1982.

Projected savings constitute an opportunity cost savings reflecting a monetary equivalent of scarce data processing resources made available for reallocation to other computer support functions. While such savings are not realizable budget reductions, they are, in the long run, equal in significance to actual monetary savings.

[2]Report of the Task Force on Long-Range Planning for Future Use of Computer Technology, p. 95.

Administrative Personnel Policy

The complexity of the payroll structure is affected by personnel policies. One policy in particular has greatly affected payroll structure. The creation of extended year employment as a separately identifiable employee group emanates from administrative policy. Another policy affecting the complexity of payroll structure involves varying bases for determining stipend compensation. Certain activities require sponsors to report attendance, while other activities do not; and compensation can be based on an hourly rate, per diem rate, or a flat contractual fee, depending upon the sponsored activity. Reevaluation of administrative personnel policy offers another avenue by which simplification of payroll attendance processing can be achieved.

Recommendations

- Design and develop a new payroll structure which capitalizes on common characteristics between existing employee groups. A recommended structure would include a permanent employee payroll, an other employee payroll, an extracurricular activities authorization process and provision for a single biweekly pay date, as outlined in Exhibit 7.2.

- Incorporate a redesigned payroll structure into the overall plan for replacement of the current payroll system.

- Include specifications in the proposed development of a human resources data base system to accommodate a redesigned payroll structure.

- Consider a distributed system network to replace batch processing as the mode for payroll attendance data entry.

- Reevaluate administrative and/or Board of Education policies which significantly impact the complexity of payroll procedures.

CHAPTER 8

OTHER ATTENDANCE PROCESSING ISSUES

Introduction

The previous two chapters addressed the two issues of the attendance processing cycle design and multiple payrolls. In this chapter, four other attendance processing issues are analyzed. They are attendance voucher corrections, special year-end payrolls, computation of income tax withholdings and Independent Activity Fund payments.

Findings: Attendance Voucher Corrections

Attendance voucher corrections are a separate mechanism the payroll system provides to correct previously reported attendance. Attendance voucher correction procedures provide reporting unit timekeepers with a mechanism for initiating changes in employee attendance which was previously reported to the Division of Payroll. Timekeepers prepare voucher correction forms, recording attendance as originally reported, attendance as it should have been reported and local administrative approval authorizing the correction. If the Division of Payroll receives corrections before the applicable attendance has been processed, payroll clerks will make the necessary correction directly on the summary attendance voucher. A separate correction process is used when voucher corrections are received subsequent to the pay period to which they apply.

As correction forms are received, payroll clerks determine that the proposed corrections have been properly authorized and then research original attendance documents to verify agreement between the voucher correction and the original summary attendance voucher as to attendance initially reported. Payroll clerks calculate required corrections, noting whether they affect leave balances, salary payments, or involve both leave and salary adjustments. Adjustments are accumulated and processed every two weeks.

Timekeepers were asked in a sample survey to respond to the frequency with which particular events caused voucher corrections. The most frequently given response was that voucher corrections were used to correct attendance discrepancies resulting from the need for employees to estimate their attendance for the last Friday of the pay period. As noted in the analysis of attendance processing, the present timetable for submission of attendance vouchers necessitates such estimation. When an employee unexpectedly becomes ill on that Friday, a voucher correction must be prepared to notify the Division of Payroll to process an adjustment reducing the employee's sick leave balance for a day of illness.

Exhibit 8.1

TIMEKEEPER RESPONSES ABOUT EVENTS REQUIRING THE USE OF ATTENDANCE VOUCHER CORRECTIONS

Event	Percentage Responding Yes
Correct employee time estimates	89.7
Correcting mistakes on summary attendance voucher	74.4
Submit overtime not previously reported	46.2
Adjusting leave taken or leave without pay	43.6
Submit late employee time vouchers	17.9
Other events	-

Exhibit 8.1 rank orders the other responses of timekeepers. Each event requires some action to be taken by the Division of Payroll to correct leave balances, salary payments or, in certain cases, both leave and salary adjustments are necessary. The number of corrections each year reaches into the thousands and absorbs an estimated one person year (about $20,000) of Division of Payroll clerical resources. The corrections process is supported by a system of manual procedures entirely outside regular attendance processing.

Implications of the Findings

The major source of voucher corrections emanates from correction of attendance estimates. Chapter 6 recommends steps which if taken would eliminate the need for employees to estimate their attendance for the last work day of the pay period. In so doing, the major source of voucher corrections would be eliminated.

Voucher corrections would continue to accommodate other events necessitating their use, particularly for correcting timekeeper mistakes in attendance voucher preparation, and should continue, as now, to be subject to local administrative approval. A more efficient response for meeting these needs would be to automate procedures and incorporate the correction process into regular attendance processing procedures. Such an approach would eliminate the need for about a person-year of clerical effort manually processing attendance correction adjustments.

Eliminating the need to estimate attendance would sharply decrease the volume of voucher corrections. Incorporating those voucher corrections that will continue into regular attendance processing procedures would be an efficient method. A separate section on summary attendance vouchers could be reserved for reporting prior attendance corrections. Entries in the voucher correction section would be keypunched along with the current period attendance. This approach would automate the corrections process and provide for leave and salary adjustments without involving substantial clerical resources.

Findings: Special Year-End Payrolls

At the end of each fiscal year, a special payroll is processed for the four regular biweekly payrolls and the EYE payroll. This special payroll is the mechanism used to cut-off activity between fiscal years. June 30, the last day of the fiscal year, seldom coincides with the last day of a pay period. It usually falls somewhere within a pay period. Splitting the biweekly period within which June 30 falls into two separate payment cycles allows the Division of Payroll to identify and thus cutoff activity occurring through June 30, the old fiscal year, and activity occurring after June 30, the new fiscal year.

There are three reasons a cutoff of year-end activity is necessary. First, salary payments must be accounted for in the fiscal year in which they are budgeted. Second, contractual cost-of-living adjustments are effective as of each July 1, requiring attendance to be segregated for payment at the correct wage rate. Third, leave accounting, which follows a June 30 fiscal year, requires proper cutoff for leave earned and excess leave usage determinations.

Operating a 27th pay cycle as the means for satisfying year-end cutoff requirements is not cost-effective. Not only does it require all the costs associated with processing an attendance cycle, it also generates overtime and complicates the transition between fiscal years. Mass file updates closing out leave benefits for the old fiscal year, advancing leave benefits for the new year and adjusting salaries for cost-of-living increases must occur rapidly and be timed properly to coincide with split attendance processing, to assure that employees receive their paychecks on time. The requirements which enable processing an extra attendance cycle unnecessarily strain payroll and data processing resources during what is already a busy period.

There are alternatives for effecting fiscal year-end cutoffs without resorting to processing a special attendance cycle.

Leave Accounting Cutoff

Leave accounting now follows a July 1-June 30 fiscal year which generates the need to cutoff leave usage on June 30. A simple methodology which would avoid the need for special cutoff procedures would be to define leave benefits years as consisting of 26 pay periods ending the last pay period prior to June 30. On this basis, leave benefits would be earned rateably over 26 periods. Yearly leave advances would be made the first pay date of the new year.

It is not necessary that leave benefits accounting follow the budget fiscal year. Leave usage does not affect salary expenditures or fiscal accounting. Hence, there is no budgetary requirement to account for leave usage on a July 1-June 30 basis. Accounting for leaves on a 26 pay period basis does not affect employees, for they would continue to be advanced and earn the same benefits as contractually provided.

Salary Changes and Fiscal Accounting

There are two options available for effecting a cutoff for budgetary and salary adjustment purposes.

Option 1: Make cost-of-living and anniversary salary adjustments effective as of the first full pay period of the new fiscal year, rather than as of July 1. This option would eliminate the need to split attendance between fiscal years for correct application of wage rates.

Option 2: Use an automated allocation factor to split permanent employee attendance applicable to old and new salary rates based on the ratio of work days in the biweekly pay period through June 30 to the total number of work days in the pay period. If, say, June 30 fell on the seventh day of the pay period, then 70 percent of reported attendance would be subject to the prior wage rate and 30

reported attendance would be subject to the prior wage rate and 30 percent at the new wage rate. This option takes advantage of known permanent employee work schedules to form a basis for making aggregate allocations. As the work schedules of temporary and substitute employees are not predefined, effecting wage increases for these groups should follow the provisions of Option 1.

Under both options, fiscal year-end accounting cutoff can be accomplished through a journal entry which allocates aggregate salary expenditures to the accounting records of the appropriate year on the ratio basis presented in Option 2.

Either option would be an effective replacement in lieu of operating special payrolls each year-end. Option 1 would facilitate handling of work schedule exceptions for leave without pay and overtime, but would require amendment of Association agreements which specify July 1 as the effective date for cost-of-living increases. Option 2 has the opposite effect. It would not require changes to Association agreements except as applied to substitute teachers, but raises questions concerning the selection of appropriate wage rates applicable to leave without pay and overtime occurring in the pay period straddling fiscal year-ends.

Implications of the Findings

Eliminating the use of a 27th pay cycle each fiscal year-end would relieve a major source of tension in the payroll cycle during end of year activity. It would also save about .2 person years (about $3,000) in the Division of Payroll and approximately 32 hours computer machine time (equivalent to $20,000), and reduce payroll overtime related to year-end activities. Reduction in computer machine time is especially significant for it frees data processing resources for other uses during a peak activity period. Implementing the replacement methodology discussed above would necessitate changes in Association agreements, specifically to:

- Redefine the school year for leave accounting purposes to consist of 26 biweekly periods ending the last pay period prior to each fiscal year-end
- Provide for advancement of leave benefits as of the first pay period in the leave accounting year, as defined above
- Under option 1, redefine the effective date of cost-of-living salary adjustments as the first day of the first full pay period of each fiscal year or, under option 2, redefine the effective date only for substitute teachers

Implementation would require major changes in payroll computer applications to provide the capability to compensate employees at more than one rate of pay

and to distribute salary expenditures to more than one budget account in the same pay period. This capability should be included in the design for replacement payroll applications scheduled for completion in fiscal 1986. In the interim, enabling contractual modifications can be included in negotiations for new Association agreements for the years beginning July 1, 1984 and 1985.

Findings: Computation of Income Tax Withholdings

The number of paychecks an employee receives is dependent upon the number of job positions held. Employees with more than one position are paid separately for time worked at each position. The underlying reason for issuing separate paychecks to employees working multiple positions lies first with the separate payment cycles of the individual payrolls and secondly because payroll programs are incapable in a given pay period of compensating an employee at more than one rate of pay or of allocating salary payments to more than one budget account.

Each paycheck is calculated independently of any other paycheck. This practice may result in an underwithholding of income taxes from employee paychecks. Exhibit 8.2 illustrates the effects on federal tax withholdings arising from separate computations. The examples in this exhibit are based on an employee working two permanent positions who is married and entitled to declare three withholding exemptions.

As this exhibit illustrates, an employee who correctly declares his/her marital status and allocated allowable exemptions, as provided by law, may have his/her federal taxes underwithheld by as much as thirty percent. Declaring zero exemptions would still leave the employee with substantial underwithholdings. In fact, to overcome the effects of separate computations, an employee would have to request withholdings be based on tax tables applicable to single individuals.

The method of computing tax withholdings applicable to the triannual extracurricular activities salary payments is based on the use of quarterly tax withholding tables. Use of this methodology generally results in the withholding of little or no income tax. The reason few salary payments are subject to withholding is that quarterly tax tables do not require withholding on individual payments less than six hundred dollars. Few stipend payments in any of the three payment periods exceed this amount. Further, the practice of using quarterly tax tables for determining tax withholdings on extracurricular payments does not comply with the Internal Revenue Service (IRS) regulations regarding withholding on supplementary wages.

The IRS regulations provide for the use of one of two alternatives for calculating tax withholdings on supplementary wages. The aggregation method

EXHIBIT 8.2

ILLUSTRATED UNDERWITHHOLDING OF FEDERAL INCOME TAXES

	Biweekly Salary	Example 1 Status*	Example 1 Amount Withheld	Example 2 Status*	Example 2 Amount Withheld	Example 3 Status*	Example 3 Amount Withheld
Job #1	$ 500	M1	$ 62.93	MO	$ 71.01	S1	$ 80.48
Job #2	620	M2	80.06	MO	97.50	SO	124.64
	$1,120		$142.99		$168.51		$ 205.12
Combined Basis	$1,120	M3	204.33		204.33		204 33
Biweekly (over) under withholding			61.34		35.82		(.79)
Annualized (over) under withholding			$1,594.84		$931.32		$(20.54)
Percent (over) under withheld			30%		17%		(.4%)

*status represents employee withholding declaration; i.e. M1 represents married taking one exemption; SO represents single taking no exemptions.

provides that the tax may be determined by adding supplementary wages to either the current period or preceding period regular wages. The tax applicable to the supplemental payments would be the difference between the total tax and the tax applicable to regular wages alone. An alternative method provides for computing the tax by using a flat rate of twenty percent.

Implications of the Findings

The practice of computing employee tax withholdings independently and without regard to other sources of employee compensation imposes on employees the risk of potentially substantial underwithholding of income taxes. Employees are left to their own resources to assure that sufficient taxes are withheld to cover their annual tax liability. Employees knowledgeable of the progressive effects of the federal tax structure may be in a better position then less knowledgeable employees to understand the need to closely monitor, in the aggregate, the amount of taxes being withheld when they hold more than one job. In any event, the responsibility is placed fully on the shoulders of employees to provide for the proper withholding of income taxes.

Present practice may not recognize the responsibility which MCPS has in providing a methodology which assures adequate tax withholdings. Internal Revenue Service regulations may disallow the use of withholding methodology which consistently results in underwithholding of taxes. There are computational methodologies available to MCPS which provide a sounder basis for assuring the adequacy of tax withholdings.

There are two alternatives which could be applied in situations where employees hold more than one position. One alternative is the annualized wage method. Under this alternative employee's total wages would be annualized with the amount of tax determined using withholding tables for annual pay period. This tax would then be prorated back to individual pay periods. The other alternative is the cumulative wage formula which adds current period wages to cumulative wages, calculates a total tax based on average wages for the pay periods to date, and deducts from the current paycheck the excess of that amount from what has already been paid.

Either of these two alternatives would be preferable to current practice. Of these two, the cumulative wage formula appears more adaptable to the current payroll structure. Sufficient information on which to determine the cost of modifying the payroll programs to implement a new method for calculating tax withholdings was not available during the study. However, discussions suggest that under the current multi-payroll structure, implementation may be complex and costly to achieve. On the other hand, payroll programs have been scheduled by the Task Force on Long-Range Planning for Future Use of Computer Technology for revision beginning in fiscal year 1984, at which time

implementation of an alternate method could be incorporated into the development process. While the need exists to adopt immediately a more appropriate methodology for calculating tax withheld, current constraints prevent a recommendation for immediate implementation across all payrolls. However, the decision to postpone corrective action regarding withholding calculations should be made with recognition that a certain risk of noncompliance with IRS regulations exists.

The need to revise withholding methodology used on the extracurricular activities payroll is more clearly defined. The use of quarterly tax tables results in little or no tax withholdings and does not conform with either of the two alternatives provided in IRS regulations for determining withholding taxes for supplementary pay. Of the two acceptable alternatives, the use of a flat twenty percent rate would be the simpler method to apply and would result in lower, yet adequate, tax withholdings from employee stipend paychecks.

The above discussion addresses tax withholding methodology under the current multi-payroll structure. Chapter 7 in this report addresses the issue of multiple payrolls as a major impediment to providing an adequate structure for withholding taxes from employees whose paychecks are processed across several payrolls. That chapter recommends an alternative payroll structure which consolidates employee compensation from all sources into a single payment process. Adoption of such a recommended structure would eliminate tax withholding methodology as a payroll system issue, as compensation through separate paychecks would cease to exist.

Findings: Independent Activity Fund Payments

One additional problem which will need to be addressed in the new payroll system is the practice of making payments for personal services out of school Independent Activity Fund (IAF) accounts. Teachers and other school staff members are sometimes asked to perform miscellaneous duties outside of school hours and are paid for their services out of the IAF funds. To comply with federal and state tax laws without placing an undue burden on the present computerized payroll system, MCPS Regulation 280-1, dated July 24, 1981, was developed as a temporary expedient for handling these payments. Under this regulation, the schools pay employees directly from the IAF bank accounts, deducting only the employee social security (FICA) tax at the rate for the current year. No federal or state income taxes are withheld. At the end of the calendar year each school which has made payments to employees for personal services submits a list of names and amounts to the Division of Payroll together with a check for the total amount of the employee and employer FICA tax on such payments. The division files the FICA tax returns and issues Forms W-2 showing the gross earnings and deductions for FICA taxes.

Employees who receive payments from IAF accounts thus receive two Forms W-2 from MCPS for attachment to their income tax returns. Employees whose total earnings from their regular jobs and from the IAF accounts exceed the maximum annual FICA earnings provided by law must notify the Division of Payroll in order to obtain a refund of the excess FICA taxes withheld. In most cases the payments from the IAF accounts are relatively small and do not have a significant effect on an employee's income tax liability. A few employees, however, receive as much as several hundred dollars in payments from IAF accounts, which can result in underpayment of taxes unless the employee has made other provisions.

Implications of the Findings

The system is cumbersome and was developed only as a temporary measure with the intent of eventually incorporating these payments into the MCPS payroll system. The payroll system should therefore include provision for these payments to be included in the employees' regular paychecks and for the IAF accounts to reimburse MCPS for the amount of the gross earnings plus the employee and employer FICA taxes. The IAF payments will then be included in the computation of federal and state withholding taxes and in the computation of maximum FICA earnings for the year. Each employee will receive only one Form W-2, which will include all earnings from the school system.

Recommendations

- Reduce the volume of attendance voucher corrections by revising the timetable for reporting unit submission of attendance documents to the Division of Payroll, as recommended in Chapter 6 of this report.

- Incorporate into the attendance processing cycle automated procedures to process attendance voucher corrections.

- Eliminate the need for special fiscal year-end payrolls by implementing a plan which:

  . Provides for leave accounting based on a 26 pay period year ending the last pay date prior to June 30; and

- Provides for annual cost-of-living adjustments to become effective on the first day of the first full pay period subsequent to July 1, or

- For permanent employees only, allocates attendance in the pay period straddling June 30 on a ratio basis for application of new July 1 salary rates.

o Include in negotiations for Association agreements beginning July 1, 1984 and July 1, 1985, contractual modifications enabling implementation of a plan to eliminate the need for special fiscal year end payrolls.

o With respect to the method of calculating income tax withholdings

  - Establish that tax withholdings on extracurricular activities payments be based on the application of a flat 20% rate

  - Consider the cumulative wage formula for use now on the regular payrolls. At a minimum, the proposed development of a new payroll system should consolidate employee compensation from all sources into a single payment process. In the interim, there should be regular information notices to employees by such means as the MCPS Bulletin, paycheck stub messages and in new employee orientation sessions, of the risk that income tax withholdings may be insufficient to meet employees aggregate tax liability when income is derived from more than one position. The Division of Payroll should be prepared to assist employees in making correct withholding declarations.

o Incorporate into the design of replacement payroll programs compensation for personal services to independent school activities into employees' regular MCPS paychecks and provide a system for reimbursement to MCPS by school Independent Activity Funds for wages and social security taxes so paid.

Implementation of the above recommendations offers the Division of Payroll an additional opportunity to reduce clerical resources dedicated to attendance processing by approximately one person year for an estimated aggregate savings, including fringe benefits, of about $19,000. Elimination of special year-end payrolls would save 32 hours of computer machine time, having an equivalent value of $20,000.

CHAPTER 9

ANALYSIS OF DIRECT DEPOSIT

Introduction

This chapter addresses the issues associated with the single aspect of Electronic Funds Transfer (EFT) that applies to the MCPS payroll system; namely, direct deposit of an employee's pay. The objectives of the chapter are to (1) define direct deposit and describe how it might function in MCPS, (2) identify the costs and potential economic benefits to MCPS, (3) identify the benefits to employees, and (4) describe the experiences of other Maryland educational agencies with direct deposit. Over the past ten years MCPS has considered direct deposit on several occasions, and each time has decided not to initiate a direct deposit program. However, as considerable advances have been made in the technologies and capabilities of electronic funds transfer systems in the past few years, a detailed analysis of the direct deposit concept is warranted. The most recent MCPS review of direct deposit (1980) concluded that the state of the current computerized payroll application precluded the initiation of a direct deposit program. Consequently, the analysis in this chapter is based on the assumption that any decision to participate in a direct deposit program would coincide with the implementation of a new computer supported payroll system and that the capabilities for direct deposit would become design specifications of the new payroll system.

Background of Electronic Funds Transfer

Simply stated, electronic funds transfer (EFT) is the process/mechanism by which funds are transferred from one account/organization to another account/organization without the issuance of a paper check. EFT is the mechanism which holds the greatest potential for reducing the cost of financial transactions and decreasing the growing mounds of paperwork in our paper check society. Electronic funds transfer has two major applications, (1) the credit of payments such as net payroll and retirement, and (2) the debit of payments such as insurance, utility and other obigations or bills. This chapter will focus on only one application of EFT, the direct deposit of payroll. Briefly stated, direct deposit of payroll is the mechanism by which an individual employee's net pay is deposited by his employer in a savings or checking account at the financial institution of the employee's choice in lieu of receiving a paper paycheck.

The impetus for EFT originated with the Federal Reserve System's implemention of the Electronic Funds Transfer Act passed by congress in November, 1978. As a consequence, the two organizations most deeply involved with EFT are the Department of the Treasury and the National Automated Clearing House Association. Currently, Treasury is making over 8 million direct deposit payments each month, representing $2 billion. Included in these payments are direct deposits to recipients of Social Security Benefits, Civil Service Annuity, Veterans Administration Compensation and Pension Payments, and other payments made by the federal government. These direct deposit programs have proven to (1) reduce government operating costs (2) improve service to recipients, and (3) handle payment volume increases. The National Automated Clearing House Association is the administrative association which coordinates the 32 local Automated Clearing Houses (ACH's) which process millions of private sector EFT debits and credits each month. From this beginning in Treasury, direct deposit/EFT has spread to numerous state and local government agencies, private companies and commercial organizations. Direct deposit of payroll currently represents the largest application of EFT for local governments.

Fast paced developments in retail electronic banking (the second major application of EFT-debit of customer bills and other obligations) and the tremendous growth in automatic teller machine (ATMs) regional networks will actually provide greater economic pressure for direct deposit systems. Experts predict that within the next 18 months, most banks will be affiliated with one of about six national electronic banking networks.[1] Operating with debit cards, the new interbank ATM networks will enable customers to withdraw cash, make deposits, or transfer funds between both checking and savings accounts from any member financial institution across the country. Within a few years these networks should have the capability to provide these same services from an individual's home (less cash withdrawn) and retail point-of-sale terminals. Most financial experts believe that the rapid growth of EFT to date will accelerate during the coming decade. It is anticipated that non EFT operations will become even more costly in the future due to changes in powers and services offered by financial institutions caused by the Depository Institutions Deregulation and Monetary Control Act of 1980 and the ever increasing cost and volume of paperwork. National studies have shown that the average cost of processing a check at a major bank has increased to $0.41 (36 percent) over the past two years.[2] However, banks are currently only charging approximately $0.10 for this service. Allan H. Lipis, President of Electronic Banking, Inc. observed that: "If banks are going to survive, they must increase their transactual services and decrease their costs. The only mechanism on the horizon for doing this is electronic banking."[3]

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[1] "Electronic Banking," Business Week, January 18, 1982.

[2] Ibid.

[3] Ibid.

Summary of Current Payroll Process

This section summarizes those aspects of the current MCPS payroll process that relate to the analysis of direct deposit. By necessity, some of the data and description presented in earlier chapters is repeated here, but provides a foundation for consideration of the direct deposit.

MCPS pays its employees through six payrolls, four regular biweekly and two periodic payrolls. Professional and supporting service employees are paid biweekly on alternate Fridays and are the two largest payrolls. Substitute teachers are paid biweekly on the same Friday as professional employees. Temporary part-time employees represent the fourth regular biweekly payroll and are paid on the same Friday as supporting service employees. The two periodic payrolls pay employees for work performed under the Extended Year Employment (EYE) and Extracurricular Activities programs.

Paychecks for the professional, supporting service, and extracurricular activities payrolls are distributed to employees via the internal MCPS mail system (pony). Checks are delivered to a central location in the school or office where it becomes the responsibility of the principal/manager, or other assigned person, to make distribution to individual employees. Because of personnel mobility, paychecks for bus drivers, substitute teachers, temporary, part-time and EYE employees are mailed to their homes. Exhibit 9.1 shows the average number of checks and dollar amount of payroll distributed, by type of payroll, for an average paydate. The biweekly pay for professional and part-time employees averages 8,000 checks and approximately $4,000,000. On alternate paydates, approximately 6,200 supporting services employees and substitute teachers receive approximately $2,000,000.

On the Thursday before each Friday payday MCPS deposits funds in the amount of 15 percent of the total net pay in an account with Maryland National Bank. No funds are deposited on the Friday of the paydate. Fifty percent of the net total pay is deposited on the following Monday and the remaining 35 percent on Tuesday. The checks deposited in Maryland National to cover payroll are drawn on the General Fund in the First National Bank of Maryland. MCPS makes the deposit in First National from funds provided by the Montgomery County Government.

Scenario of Direct Deposit in MCPS

The intent of this section is to describe how direct deposit of payroll might function in MCPS. For the purpose of the scenario several assumptions have been made concerning a direct deposit program in MCPS. The validity of these assumptions will be discussed in a later section, but for the moment, assume that MCPS has decided that participation in a direct deposit program should be

Exhibit 9.1

AVERAGE PAYCHECK VOLUME PER PAYDATE

Type of Payroll	Number of Checks	Dollar Volume
School Year (September-June)		
Professional	6,900	$3,840,000
Temporary, Part-time	1,100	140,000
Pay Cycle Total	8,000	$3,980,000
Supporting Services	5,500	1,620,000
Substitute Teachers	740	265,000
Pay Cycle Total	6,240	$1,885,000
Summer Months (July, August)		
Professional	620	$ 480,000
Temporary, Part-time	970	200,000
Pay Cycle Total	1,590	$ 680,000
Supporting Services	2,800	990,000
Substitute Teachers	80	8,000
EYE	1,900	780,000
Pay Cycle Total	4,780	$1,778,000
Stipends (Tri-annual)		
Total	4,324	$1,800,000

voluntary and that the lead bank and the Automatic Clearing House (ACH) model will be used. An ACH is a facility which performs inter-bank clearing of paperless payments utilizing electronic alternatives to checks and other traditional paper instruments. ACH's are generally operated by Federal Reserve Banks acting as data processing agents.

The lead bank and MCPS would jointly market the benefits of direct deposit to employees, possibly with the assistance of the employee associations, and sign up those employees who choose to participate. The employee would fill out an authorization card which authorizes MCPS to credit his net pay to a given account (checking or savings) in a given bank. The employee then provides the bank name, bank account number, his name, social security number and work location. A void check is requested from the employee and is used to minimize transcription errors in the account number. MCPS would send a dry run or "prenotification" through the direct deposit credit processing procedures to ensure that the employees account is valid and the process is working smoothly. This is all the employee would need do, on payday the employee would receive a direct deposit stub through the same distribution procedures that he currently receives his check and checkstub. The direct deposit stub would contain exactly the same data as the checkstub, with the addition of a statement that his net pay has been credited to his account. The employee's pay would be available to him in his account at the start of business on his regular paydate.

To accomplish the crediting of employees' net pay in their individual accounts in hundreds of separate banks MCPS would use the "surepay" direct deposit program of the Mid-Atlantic Automatic Clearing House in Baltimore and the services of a local lead bank. Exhibit 9.2 shows the lead bank/ACH model and the process used to distribute the employees' net pay. The lead bank, or Originating Financial Institution as referred to by ACH's, would be selected by MCPS through a formal bid process and would be the school system's single entry point into the "surepay" direct deposit process. MCPS would have to provide the lead bank with all data necessary to have the net pay of all participating employees credited to their individual bank accounts. This would be accomplished by giving the lead bank a computer tape containing, in a specific format, a record for each participating employee. Each employee record would contain the employee's name, social security number, amount of net pay, a bank identification number, and an account number. The tape typically must be delivered to the lead bank two days before the paydate. The lead bank removes the records of those employees who have accounts at their bank and sends the computer tape with the remaining records to the Mid Atlantic Automatic Clearing House (MAACH) in Baltimore. The MAACH in turn would remove the records of employees whose bank is in their region and sends these records to the appropriate Receiving Financial Institution (the employee's bank). The receiving bank posts the credit to the employees account the night before the paydate so it is available to the employee at the opening of business on the employee's paydate. The Mid Atlantic Automatic Clearing House serves approximately 250 banks and savings and loans in Maryland,[4] Northern Virginia, the District of Columbia, and northeastern West Virginia. There are 32 independent regional Automated Clearing Houses

[4]See Appendix C for a listing of member financial institutions.

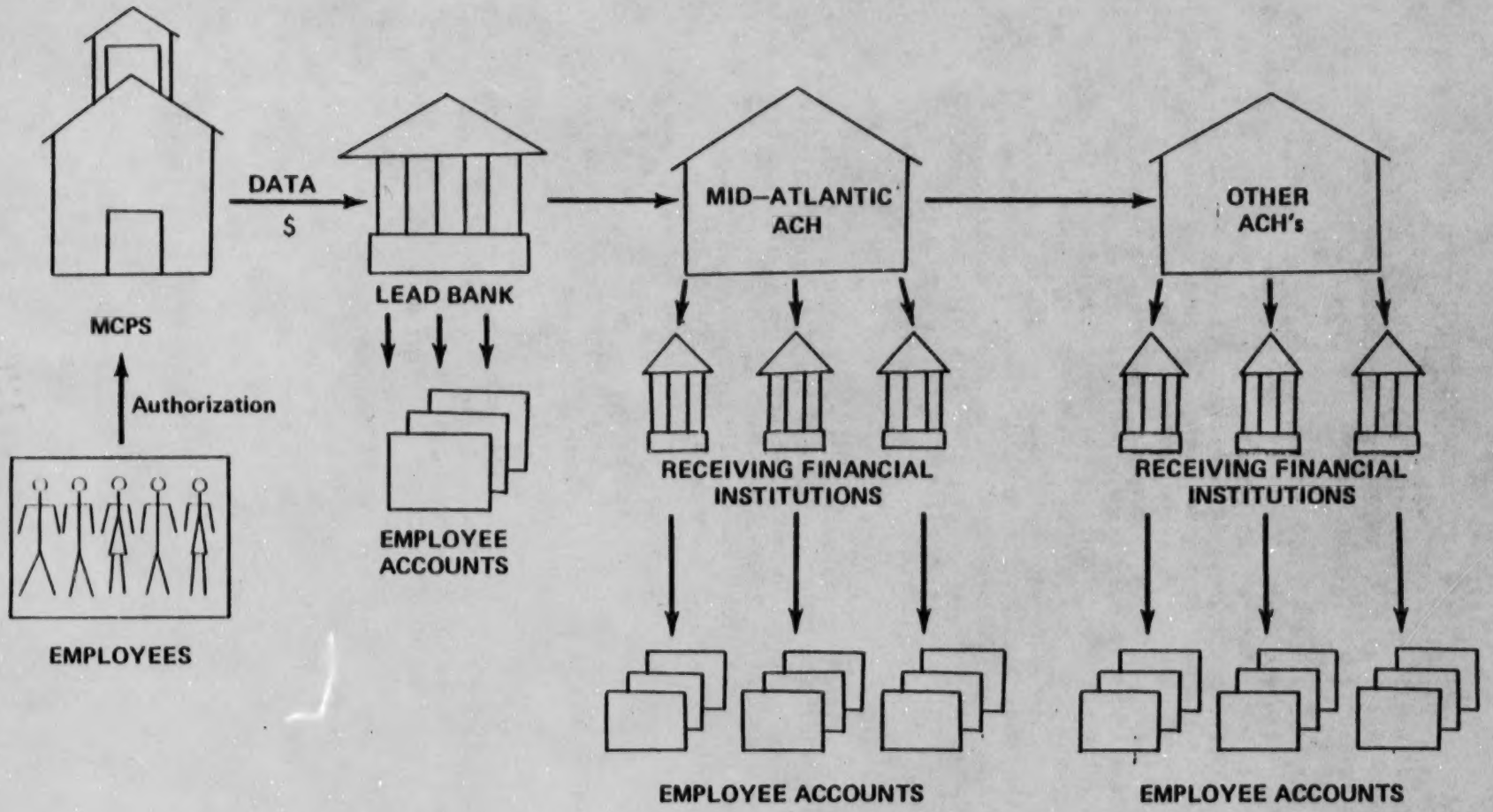

Exhibit 9.2
LEAD BANK/ACH MODEL

across the country. If the employee has, for some reason, selected a bank outside the region served by the Mid Atlantic Automated Clearing House, MAACH would electronically transmit the employee's record to the appropriate ACH, which in turn would transmit the record to the Receiving Financial Institution (the employee's bank).

MCPS would have to provide payment for the total amount of net pay of employees participating in the direct deposit program to the lead bank the night before or the morning of the paydate. The complete processing schedule (times for delivery of paperless entries and payments) would be detailed in the contractual agreement between MCPS and the lead bank. In addition, the lead bank typically provides certain free or extended services to employees who keep their account with them (i.e., free checking with no minimum balance).

Cost Analysis

Discussion of Cost Components

This section compares the costs of participation to the cost savings for a direct deposit payroll program. Costs and cost savings are discussed as having both tangible (easily quantified into hard dollars) and intangible (easily described but not easily quantified into hard dollars) components. The purpose is to describe and quantify both the tangible and intangible costs of direct deposits, with the knowledge that the ultimate recommendation must consider both types of cost components. The cost analysis draws heavily on past direct deposit cost benefit analysis studies. Cost data applied to MCPS but not directly collected in MCPS is identified; and although complete accuracy of the data cannot be assured, it is certainly well within the accuracy for the purpose it is being used.

In evaluating the cost effectiveness of direct deposit of social security and other types of payment checks the Department of Treasury identified three major cost components. They are (1) issuance costs, (2) postage, and (3) float. The Department of Treasury found[3] that issuance costs for direct deposit were $0.03 less per item than for paper checks. The issuance or processing costs includes all resources, such as personal services and benefits, supplies and materials, space and utilities involved in check (or direct deposit) distribution, and payment and reconciliation operations.

Although postage costs are self-explanatory, the cost of float might require definition. As interest rates have risen over the past five years an increasing number of companies and organizations have come more fully to realize that money has investment value, even for periods of time as short as

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[3] State and Local Government Direct Deposit/Electronic Funds Transfer Seminar Materials, U. S. Department of the Treasury, Washington, D.C., 1978.

1-3 days. Consequently, float is the cost (lost revenue) associated with having to give up funds rather than invest them for short periods of time. For high volume payroll systems, float becomes a major cost consideration in evaluating direct deposit programs. When an organization issues paper payroll checks, on a Friday for example, they know from past experience that a percentage of those checks will either not be cashed by employees or clear the issuing bank for payment until Monday or Tuesday of the following week. This percentage may even be as high as 50 to 70 percent of the total net pay. Consequently, the organization deposits on the paydate only enough funds that experience has shown will be required, invests the remaining payroll funds over the weekend, and deposits the remaining funds on Monday or Tuesday. For direct deposit programs, however, all (100 percent) of the total net pay must be credited to the employees accounts on the paydate. Consequently, the organization in this example, loses the opportunity to invest a percentage of the total net pay from Friday to Monday or Tuesday. The revenue lost from the noninvestment is referred to as the cost of float. It is easy to see that the cost of float is directly related to investment rates (interest rates). As the investment rate of return goes up, the lost revenue or float cost increases and, conversely, as the investment rate of return declines, float is decreased.

A fourth major cost, that did not apply to the Department of Treasury, but is applicable to MCPS, is the intangible cost of lost employee time caused by employees going to the bank[4] to cash their paycheck during normal working hours. National studies[4] have shown that approximately 20 percent of employees take 30 minutes of company time each payday to cash/deposit their paycheck. The cost of this lost time is considered an intangible cost because, although direct deposit may recover this cost, it is reflected as increased productivity and does not generate hard dollar savings.

MCPS Cost Analysis

Exhibit 9.3 depicts the results of applying The Department of Treasury State and Local Government cost model to MCPS payroll data. The exhibit shows the projected total annual savings of direct deposit for four levels of employee participation. The analysis includes both tangible (recoverable) and intangible (nonrecoverable) costs. Exhibit 9.3 shows that when both types of costs are considered, the implementation of a direct deposit program is cost effective for all four levels of employee participation. The net annual savings to MCPS ranges from approximately $60,000 at the 25 percent participation level to $240,000 at the 100 percent employee participation rate. The results obtained from the survey of other Maryland school systems using a direct deposit system indicate that MCPS should anticipate a participation rate of 25-35 percent. Consequently, the remainder of the cost analysis section will feature the 25 percent participation level depicted in Exhibit 9.3. It should be noted that the cost of float is not

[4] Ibid.

Exhibit 9.3

MCPS DIRECT DEPOSIT COST ANALYSIS[1]

	Percentage of Employee Participation			
	100	75	50	25
One-Time Costs				
Collection of authorization forms and file maintenance ($.09/item[2])	$ 1,000	$ 1,000	$ 1,000	$ -
Modification of payroll system[3]	N/A	N/A	N/A	N/A
Total One-Time Costs	$ 1,000	$ 1,000	$ 1,000	$ -
Annual Costs				
Float loss[6] (See Exhibit 9.4)	$116,000	$ 87,000	$ 58,000	$29,000
Financial organization Service charge	N/A	N/A	N/A	N/A
Total Annual Costs	$116,000	$ 87,000	$ 58,000	$29,000
Annual Savings				
Bank check processing charges	N/A	N/A	N/A	N/A
In-house reconcilement charges ($.07/item[1])	$ 26,000	$ 19,000	$ 13,000	$ 6,000
Postage[4]	15,000	11,000	7,000	4,000
Estimated value of employee lost time spent in financial institutions cashing/ depositing checks[5]	314,000	236,000	157,000	$79,000
Check printing costs ($3/1,000 checks)	1,000	1,000	1,000	-
Total Annual Savings	$356,000	$267,000	$178,000	$89,000
Net Annual Savings	$240,000	$180,000	$120,000	$60,000

[1]Unit and item costs used in this analysis represent data obtained from published direct deposit cost/benefit studies and, although representative of costs in MCPS, are not actual MCPS computed costs.

[2]Based on 15,913 full and part-time MCPS employees and 364,000 pay checks issued in FY 1981.

[3]Assumes that the capability for direct deposit will become specification in the new personnel/payroll system and, as such, the existing payroll system will not be modified.

[4]MCPS mails payroll checks to temporary part-time employees, substitute teachers, bus drivers, and employees receiving EYE. Employee participation percentages are for this group only.

[5]Previous direct deposit cost/benefit studies have shown that 20 percent of the employees take 30 minutes of company time each payday to cash/deposit their pay checks. For professional employees, this equates to $213,000 (.20 x 6700 x $14.45 x ½ hr. x 22 pay periods). For supporting service employees, this equates to $101,000 (.20 x 5730 x $6.78 x ½ hr. x 26 pay periods).

[6]Float loss is not a MCPS cost, but would be a cost incurred by the County Government.

actually a loss to MCPS but rather to the Montgomery County Government. This is the case because the County Government, not MCPS, has responsibility for cash investment and under a direct deposit program MCPS would ask the County Government for larger sums of money earlier in the payroll payment schedule. So although the MCPS Operating Budget would not be adversely affected by the float loss, the County Government Budget would.

As discussed earlier, many of the costs depicted in Exhibit 9.3 are nonrecoverable. For example, although there is a $79,000 saving in lost employee time for the 25 percent participation rate, these funds represent increased employee time on the job but cannot be used to directly offset the $29,000 float loss to the County Government. Likewise, although it is widely accepted that direct deposit reduces the cost of check reconciliation, this cost is hard to quantify and difficult to capture from the Operating Budget.

Exhibit 9.4 shows how the float loss was calculated. MCPS currently deposits 15 percent of the total net pay on the Thursday before the Friday paydate, 50 percent on Monday and the remaining 35 percent on Tuesday. Under a direct deposit program MCPS would be required to deposit the total amount of net pay for participating employees on the Friday paydate. Consequently, approximately $116,000 of float would be lost if 100 percent of the employees participated in the direct deposit program. The cost of float loss would decline to approximately $29,000 at an employee participation rate of 25 percent. An investment rate of return of 12 percent per annum was used in the float calculations. Exhibit 9.5 shows the effect that increased/decreased rates of return have on the cost of float. At the 25 percent participation rate (which MCPS would expect in the first year), an 8 percent rate of return decreases float loss to $19,000, while a 16 percent rate of return increases float loss to $38,000.

Benefits of Direct Deposit

Benefits to MCPS

The previous section discussed those benefits of direct deposit of payroll which contributed cost savings to MCPS. This section identifies the benefits to MCPS which either produce non-recoverable savings or intangible benefits.

1. Direct deposit contributes to an easier and more cost-effective payroll issuance operation in the following ways:

   a. Reduces storage requirements and security problems associated with blank check control

   b. Reduces storage requirements for cancelled checks

Exhibit 9.4

CALCULATION OF ANNUAL FLOAT LOSS

Current Payroll Bank Deposits

Thursday 15 percent of total net pay
Monday 50 percent of total net pay
Tuesday 35 percent of total net pay

Estimated investment rate of return: 12 percent per annum daily factor 12% - 365 = 0.000328767.

FY 1981 Payroll Data

Total net payroll for FY 1981 was $127,968,000

Float Loss Calculation

(a) float loss 3 days of 50 percent of $127,968,000
(b) float loss 4 days of 35 percent of $127,968,000
(c) float gain 1 day of 15 percent of $127,968,000

(a) 3 x 63,984,000 x .000328767 =	$ 63,000
(b) 4 x 44,788,800 x .000328767 =	59,000
(c) 1 x 19,195,200 x .000328767 =	6,000
Net float loss (for 100 percent participation)	$116,000

Exhibit 9.5

FLOAT LOSS BY INVESTMENT
RATE OF RETURN AND EMPLOYEE PARTICIPATION

	Float Loss Percentage Employee Participation Rate			
Investment Rate of Return	100	75	50	25
8 Percent	$ 77,000	$ 58,000	$38,000	$19,000
10 Percent	96,000	72,000	48,000	24,000
12 Percent	116,000	87,000	58,000	29,000
14 Percent	135,000	101,000	67,000	34,000
16 Percent	154,000	116,000	77,000	38,000

c. Reduces labor and machine maintenance costs associated with check signing and envelope stuffing operations

d. Reduces the number of handwritten checks required because of employee requests for early checks, lost or stolen checks, or those not cashed within 90 days

e. Reduces cost of paper for direct deposit stub (This savings might be partially offset by the cost of the computer printed stub mailer most organizations use for the direct deposit stub.)

2. Employee relations are enhanced because employees perceive direct deposit of payroll as a benefit and desirable service.

3. Direct deposit contributes to the employee's view of MCPS as an innovative and modern organization.

Benefits to Employees

The study found a consistent pattern of employee participation in direct deposit payroll programs. Professional employees perceive greater benefits from direct deposit and consequently, always had a higher participation rate than classified/support employees. Although individual employees perceive different benefits from a direct deposit program, the following advantages are those that are generally associated with direct deposit:

1. Direct deposit offers great convenience in depositing funds and reduces need to go to the bank and wait in long lines on busy days.

2. Money is automatically deposited each pay period, and can be used immediately, even if employee is away from home. Also eliminates need to make special arrangements for handling checks when absent from work.

3. Deposits are posted to the employee's account more quickly, reducing possibility of overdrafts.

4. Eliminates possibility of lost or stolen checks.

5. Payroll data is more confidential, as distribution is done by magnetic tape, not people.

6. Deposit can be sent to either a checking or savings account.

7. Complete earnings statement (direct deposit stub) is still received every payday.

8. For employees on odd shifts, eliminates the necessity for special trips to pick up and deposit pay checks.

9. Encourages and enhances savings and good money management, hence, greater financial stability.

Benefits to Financial Institutions

Electronic funds tranfer operations in general, and direct deposit payroll programs in particular, produce significant benefits to both the originating financial institution (lead bank) and the receiving financial institution (employees' bank). A recent study by Peat, Marwick, Mitchell & Co. and Electronic Banking Inc.[1] analyzed the benefits to receiving financial institutions (commercial banks, savings and loan associations and mutual savings banks) participating in the Treasury Department Social Security Direct Deposit Program. The three major conclusions of the study are that:

1. All of the institutions studied had substantially lower processing costs for direct deposit payments as compared to processing actual social security checks.

2. Customers who use the direct deposit service have significantly higher account balances than the national averages for all bank and thrift institution customers.

3. Direct deposit customers showed increased loyalty to the financial institution and greater use of the institution's other services.

The Peat, Marwick, Mitchell & Co. study found that the average cost for a bank to process a direct deposit payment was 29 percent of the cost to process the same payment over the counter ($0.07 vs. $0.17) and 12 percent of the cost of a check presented in a mail deposit ($0.07 vs. $0.52). An analysis of customer account balances found that customers who used direct deposit showed a net increase in their account balances after only six months of participation. This increase ranged from $6.62 for checking accounts at commercial banks to $755.45 at mutual savings banks that offered both NOW and savings account, to $1,414.72 for savings accounts in savings and loan associations. A telephone survey of customers who had started using direct deposit within the last year found that 80 percent of the customers thought of the institution as their primary financial institution and approximately 20 percent reported that they had started using an additional service at the same

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[1] The Costs and Benefits of Participation in the Treasury's Direct Deposit Progam, Volume 1, Summary of Report, Peat, Marwick, Mitchell & Co. and Electronic Banking, Inc, 1981.

institution. The lower processing costs and balance benefits found in this study are transferable to direct deposit payroll programs and explain why financial institutions encourage employer participation in such programs. Individual receiving financial institutions also gain some of the float that companies lose from employees who have their net pay deposited in checking accounts on the morning of payday and do not write/cash checks from it for a few days.

In addition to the benefits to receiving financial institutions described above, the originating financial institution (lead bank) benefits even further from direct deposit programs. Financial institutions providing the services of a lead bank to an organization/company benefit from increased numbers of new accounts from employees. This account growth is further encouraged by the wide-spread practice of the lead bank offering free checking, with no miminum balance requirements, to employees participating in direct deposit programs. The benefits accruing to a financial institution from providing lead bank services to companies/organizations with large numbers of employees are such that financial institutions compete vigorously for this business. Sufficient revenues are obtained from increased growth and float that few lead banks charge separately for handling direct deposit programs. In fact, lead banks have even been known to pay the company/organization a yearly fee for the privilege of providing lead bank services.

Experiences of Other Maryland Educational Agencies

General Obserbvations

A telephone survey was conducted of nine Maryland public school systems and the Maryland State Department of Education to determine their experiences with direct deposit payroll programs. School systems, either thought to be or most likely to be using a direct deposit program, were selected for the survey, consequently the results are not representative of school systems in the state as a whole. The study found two different direct deposit payroll models being used in Maryland educational agencies. In addition to the lead bank/ACH model discussed earlier in this chapter, three school systems were using a direct deposit model whereby they dealt directly with a limited number of individual local financial institutions. Exhibit 9.6 displays the basic findings of the telephone survey. Seventy percent of the educational agencies surveyed were using one of the two direct deposit payroll models. Four of the seven school systems having a direct deposit program used the lead bank/ACH model while the remaining three dealt directly with individual financial institutions. The First National Bank of Maryland provided lead bank services to all four of the school systems using the lead bank/ACH model. Although direct deposit payroll programs were found in both large and small school systems, most larger school systems use the lead bank/ACH model while most small school systems dealt directly with individual banks. The exception being that the Baltimore County

Exhibit 9.6

OTHER AGENCY PARTICIPATION IN DIRECT DEPOSIT PAYROLL SYSTEMS

Agency	Agency Participation	Lead Bank	Employee Participation (Percent)
Anne Arundel County Public Schools	Yes	First National Bank of Md.	100 teachers 25 others
Baltimore City Government (includes school system)	Yes	First National Bank of Md.	28
Baltimore County Public Schools	Yes	none	40-50
Carroll County Public Schools	No	N/A	N/A
Charles County Public Schools	Yes	First National Bank of Md.	30-40
Harford County Public Schools	Yes	none	43
Howard County Public Schools	Yes	First National Bank of Md.	30
Maryland State Department of Education	No	N/A	N/A
Prince George's County Public Schools	No	N/A	N/A
Wicomico County Public Schools	Yes	none	33

Public Schools' direct deposit program is available only through two banks and their teachers federal credit union. However, Baltimore County is currently considering converting their direct deposit program to the lead bank/ACH model. The other two school systems that interface directly with individual banks allow employees to select from 8 or 18 financial institutions. Maryland school systems have been using direct deposit payroll programs for as long as seven years (Baltimore City) and as recently as January, 1982 (Charles County). Only one educational agency surveyed (Baltimore City Government) had performed a cost benefit analysis of direct deposit or had calculated the float loss to their organizations.

Characteristics of Direct Deposit Programs

The majority of the direct deposit payroll programs are totally voluntary (5 of 7), while two programs are manditory for at least some group of employees. By negotiated agreement, the Anne Arundel County direct deposit program is mandatory for all teachers. In Charles County, the recently implemented direct deposit program is mandatory for all new employees as a condition of employment, but voluntary for all current employees. One other school system, not currently having a direct deposit program, attempted to negotiate with their educational association for a mandatory direct deposit program but decided on not having a program when the association would not agree to a mandatory program. Employee participation rates in the voluntary direct deposit programs ranged from 25 to 50 percent in the seven school systems (see Exhibit 9.6), with an average participation rate of 34 percent. All school systems having a direct deposit program reported higher participation rates for teachers and other professional employees than for classified or supporting service employees.

Operation of Direct Deposit Programs

With a single exception, the survey found no significant differences in the processing procedures and operations of the seven direct deposit programs. Most school systems with a direct deposit program provided all employee groups the opportunity to participate in the program. Two school systems, however, did not permit substitutes or part-time employees into the program. All school systems provided participating employees with a direct deposit stub which contained the same payroll data as the regular check stub. The direct deposit stub was, in all cases, distributed on the paydate and by the same mechanism as the regular pay check, i.e., via internal mail system. Several school systems computer printed the direct deposit stub in self mailers which provides greater confidentiality of employee payroll data. All systems reported similar procedures for correcting errors in an individual employee's deposit. When the error was detected prior to the paydate and detrimental to

the school system, the receiving financial institution (the employee's bank) was telephoned and a stop deposit order issued. The employee was then issued a paper check for the proper amount through a supplemental payroll. In all other cases, the error was corrected in the following pay cycle. The single processing difference found was that the processing schedule (identifying when the magnetic tape containing employee data and the actual payment of funds were made) varied significantly among the seven school systems. The most common schedule for delivery of payroll data to the financial institutions was two days prior to the actual paydate; however, one school system was able to provide employee data as late as the day before the paydate. Of greater significance, however, was the scheduling differences in the settlement or payment date. Several school systems actually paid the lead bank the total net payroll at the same time that they provided employee data, two days prior to the paydate. Other school systems made settlement the day before the paydate and a few actually made payment the night before or morning of the paydate. Settlement date is important because it significantly affects the amount of float loss to the employer.

Most school systems participating in a direct deposit payroll system saw little or no economic benefit to their organizations and viewed direct deposit primarily as an employee benefit. All systems saw basically the same employee benefits of direct deposit that were described earlier.

Implications of the Findings

The study found that direct deposit of payroll has become a modern and effective method of paying employees. Direct deposit programs significantly reduce the amount of paper work and the processing costs of financial institutions. The lead bank/automated clearing house model operated by the Federal Reserve System is widely used and a proven mechanism for direct deposit payments. The model is currently being used by many large businesses and school systems across the country and throughout Maryland. It is anticipated that direct deposit programs will become increasingly more cost effective in the future as the costs of processing paper checks continues to escalate. In fact, it is anticipated that a time will come in the near future where increasing volumes and labor costs will make direct deposit systems almost mandatory. The anticipated rapid growth of regional and national automatic teller machine (ATM's) networks, point-of-sale debit cards, and other retail banking services will cause banks to have to recover a greater portion of their costs to process paper checks. In addition, widespread use of debit cards will cause employees to want to have earlier access to their net pay and thus demand direct deposit programs. It is further anticipated that the electronic communications networks currently being established for retail electronic banking will allow financial institutions and ACH's to reduce the typical two day processing time necessitated by the manual transfer of magnetic tape. It is projected that by the time the new MCPS payroll system is implemented lead banks will most likely have the capability to

receive employee payroll data via computer to computer communications. Consequently, a payroll system designed for use between 1984 and 1990 without direct deposit capabilities will likely have a serious deficiency.

Although the study found that employers experienced increased effectiveness in their payroll and accounting operations, the primary benefits of direct deposit go to employees and financial institutions. At the expected 25 percent initial participation level, the cost analysis for a MCPS direct deposit program indicates a net annual savings of approximately $60,000. This represents a significant dollar savings accrued by increased employee productivity (intangible) and small operational savings to offset the float loss to the County Government. It should be noted that as employee participation increases toward the 50 percent level, annual savings increase significantly. Under the assumption that the direct deposit capabilities would be designed into the new personnel/payroll system, MCPS can implement a direct deposit program without an increase in the operating budget.

Recommendations

- Design and develop a voluntary direct deposit payroll program for all employees and implement the program with the completion of the new personnel/payroll systems.

- Include direct deposit capabilities in the specifications for the new computer supported personnel/payroll systems.

- Use the RFP bid procurement process for the initial selection of the financial instituion to provide lead bank services. Explore the possibilities of the lead bank paying MCPS an annual fee for the opportunity of providing lead bank services and tightly negotiate the settlement (payment) schedule with the lead bank.

- Consider the possibilities of a mandatory direct deposit program for all employees or at least for all new employees.

The implementation of these recommendations will effect a $60,000 annual savings to the taxpayers of Montgomery County without an increase in the Board of Education Operating Budget. These savings are based upon a 25 percent initial participation rate and would expect to increase toward $120,000 savings per year as employee participation approaches the 50 percent level.

CHAPTER 10

DIVISION OF PAYROLL OPERATIONS

Introduction

The Division of Payroll operates the core of the payroll system, that is, leave and attendance processing. The payroll system was evaluated in other chapters in terms of procedural efficiency. The purpose of this chapter is two-fold: first, to evaluate the impact payroll system efficiency has upon the division's operations and staffing resources and second, to address the appropriateness of the division's response to payroll system demands.

Findings: Staff Resources

Exhibit 10.1 presents Division of Payroll staff resources for a five year period from fiscal years 1978 through 1982. The number of permanent positions has remained constant during the last three years. During 1980, two temporary employees were converted to permanent positions, resulting in the absence of temporary salaries during 1981 and 1982. Adjusting prior years for the replacement of temporary funds with permanent positions, there has been a net increase of two positions or ten percent in the last five years. The annual volume of paychecks issued in the last three years has increased slightly, going from approximately 354,000 paychecks in fiscal 1979 to 364,000 paychecks in fiscal 1981.

Overtime is a continuing payroll operating cost. Overtime is not generally incurred as a prerequisite for meeting regular payroll deadlines. It is primarily associated with specific periods of greater activity, especially from June through September. The two prominant activities during this period are fiscal year end procedures and new fiscal and school year preparatory activities. The timing of fiscal year changeover procedures are particularly constrained by the need on the regular biweekly payrolls to operate a 27th pay cycle when the last day of the fiscal year falls within a biweekly pay

period.[1] The high level of personnel activity surrounding employee assignments in preparation for the new school year generates overtime as payroll staff are absorbed in reviewing personnel actions and modifying leave and payroll deduction records in response to position changes. Overtime has also occurred when payroll personnel have been involved in testing modifications to payroll applications. Lastly, about 15 percent of overtime expenses is attributable to payroll processing periods when an MCPS holiday constricts the normal time available for preparing employee paychecks.

Exhibit 10.1

DIVISION OF PAYROLL EXPENDITURES
FISCAL YEARS 1978 - 1982

Fiscal Year	Permanent Positions	Total Expenditures	Temporary Salaries	Overtime Salaries
1982 (Budgeted)	22	$440,000	$ -	$21,000
1981	22	417,000	-	16,000
1980	22	340,000	12,000	9,000
1979	19	325,000	15,000	12,000
1978	18	310,000	16,000	11,000

Findings: Comparison With Other Counties

The number of employees allocated to the Division of Payroll was compared with counties of similar size to MCPS. Exhibit 10.2 presents this comparison. The ratio of the average number of employees paid to the number of payroll clerks was used as a comparative measure of staff utilization. Montgomery County ranks last in comparison with the other four counties. Of particular interest is the observation that MCPS is the only county which must supplement its regular payroll staff through incurrance of overtime, which is an indicator of insufficient staff resources, at least in peak periods.

[1] See Chapter 8 for presentation of the effects operating special year-end payrolls have on payroll operations.

Exhibit 10.2

COMPARATIVE PAYROLL STAFFING BY COUNTY

	Montgomery	Baltimore	Prince George's	Anne Arundel	Fairfax
Staffing:					
Administration	3	3	2	1	1
Payroll clerks	14	7	7	8	13
Accountants	3	1	-	-	4
Other clerical	2	1	2	-	-
Total payroll staff	22	12	11	9	18
Total employees	14,240	14,000	14,500	10,000	21,000
Number of employees per payroll staff	647	1,166	1,318	1,111	1,166
Number of separate payrolls	7	3	1	1	2
Other functions performed:					
Employment recordkeeping	No	Yes	No	No	No
Payroll accounting	Yes	Yes	Limited	Limited	Yes
Attendance data entry	No	Yes	No	No	No
Leave accounting	Yes	Yes	No	Yes	Yes
Reliance on temporary employees	Limited	No	Included above	No	No
Incurance overtime	Yes	No	Rare	No	No
Payroll application developed	In-house	In-house	Purchased	In-house	In-house
Year implemented	Pre-1976	1980	1972	1980	1980

The foregoing comparative analysis must be tempered by a realization that no two payroll systems are alike. Exhibit 10.2 attempts to reflect major functional differences. For example, the payroll unit in Baltimore County maintains employee personnel records and is responsible for attendance data entry, whereas these functions are not a responsibility of payroll units in other counties. Prince George's County is not responsible for leave accounting, while this is a regular function elsewhere. Numerous other differences exist between payroll operations which affect strict comparability of staff utilization. However, comparative analysis does serve as an indicator reflective of the impact positive or negative distinctions have upon staff utilization.

Implications of the Findings

Exhibit 10.2 presents a distinction which in large part may explain the disparity in staff size and utilization between MCPS and the other counties. The payroll computer applications in Baltimore, Anne Arundel and Fairfax counties were implemented in 1980. Queried on their satisfaction with payroll applications, payroll managers in these counties stated they were highly satisfied with the effectiveness of their payroll programs. In contrast, MCPS current payroll applications were implemented in 1976. Although certain improvements were made, the thrust of the 1976 implementation was conversion of existing applications from punch card to tape mode. Basic payroll program design dates to the 1960s, or over a decade older than payroll applications in use in these other counties. Not surprisingly, MCPS payroll management is highly unsatisfied with the effectiveness of their computer applications. Staff utilization in Prince George's county does not fit this analysis, for utilization is high, though payroll applications were not recently implemented. An explanation for this anamoly appears identifiable to fewer payroll unit responsibilities. In particular, leave accounting is a personnel rather than payroll unit function. The county is, however, preparing to replace present payroll applications.

Findings: Staff Functions

Exhibit 10.3 divides Division of Payroll staff on the basis of functional assignments. Presentation is based upon full-time equivalent (FTE) positions, which may differ in allocation from actual individual assignments. For example, there are two payroll clerks responsible for the temporary, part-time and substitute teacher payrolls. Their time is split between these two payrolls, which operate on alternating weeks. Thus, while two clerks are assigned to these payrolls, in the aggregate they constitute one FTE position assigned to each payroll.

Exhibit 10.3

DIVISION OF PAYROLL STAFFING ASSIGNMENTS
(Full-time equivalent positions)

Administration		3
Payroll teams:		
Professional payroll	4.5	
Supporting services payroll	5	
Temporary, Part-time payroll	1	
Substitute teachers payroll	1	
Periodic payrolls	2.7	
Total payroll teams		14.2
Payroll Accountants, including Payroll Specialist		3
Payroll records team		1.8
Total payroll staff[1]		22

[1]Beginning July 1, 1982, division staffing was reduced by the fiscal 1983 budget to a total of 21 positions. This exhibit and other analyses of staffing in this chapter were prepared prior to the reduction and, therefore, do not reflect the loss of one position.

Administrative Section

Included under this section is the director of payroll, the supervising office assistant and administrative secretary. In addition to general management and supervision of payroll operations, activities include monitoring laws and regulations for changes affecting the payroll system, coordinating and testing program modifications, special research and staff training.

Payroll Teams

Payroll clerks are organized into four teams having specific responsibility for each of the four regular and three periodic payrolls. Exhibit 10.4 presents for the five primary payrolls, excluding extracurricular activities payroll, the percent of work effort devoted to certain payroll system functions. The information in this exhibit provides a revealing analysis of the impact findings concerning payroll system efficiency have on Division of Payroll resources. The following observations can be made.

Personnel and leave maintenance activity consumes the largest portion of clerical resources. Activities include day to day control of personnel actions and master files and processing salary and leave balance adjustments as required by personnel activity. This high level of involvement relative to other responsibilities can be linked to several findings, including dysfunctional characteristics of personnel recordkeeping systems, general absence of automated support and segregation of leave accounting from the PMF, and inefficient daily master file control procedures. The percent of effort is especially high on the EYE payroll. EYE employment records are created in total each year. Since a large proportion of EYE activity begins prior to June 30, there is, in addition to initial record creation, a large volume of salary changes processed July 1 to reflect cost of living adjustments. Although EYE salaries are in almost all cases computer generated, the Division of Payroll individually verifies all EYE personnel actions.

Attendance processing consumes slightly more than a quarter of payroll team resources. The level of effort varies with the amount of responsibility assumed by the Division of Payroll. For example, the division performs attendance summarization procedures on the temporary, part-time payroll which on other payrolls is an assigned task of location timekeepers. Centralization of such tasks has a profound impact on divisional resources.

Handling disability leave and workmen's compensation cases is a time consuming, problematic task. There is no avoiding the fact that research and case monitoring activity, especially when claims are contested, absorbs an inordinate amount of clerical time. Divisional assumption of coordinative responsibility for monitoring claims status does increase payroll clerical involvement.

Interspersed among the functions deliniated in Exhibit 10.4, payroll clerks are active in responding to employee phone inquiries and requests for wage verifications and other information researches.

Exhibit 10.4

PAYROLL TEAMS ALLOCATION OF WORK EFFORT

Function	Aggregate	Professional	Supporting Service	Temporary Part-time	Substitute Teacher	EYE
Personnel and leave maintenance activity	45%	49%	43%	26%	33%	64%
Attendance processing	27	20	15	70	57	33
Workmen's compensation/ disability leave accounting	17	26	21	-	-	-
Voucher correction processing	7	2	14	2	5	3
Withholdings and deductions processing	4	3	7	2	5	-
	100%	100%	100%	100%	100%	100%

Source: Derived from Divison of Payroll time estimates.

Payroll Accountants

The accounting team is comprised of a payroll specialist and two accountants. The payroll specialist, in addition to acting as lead accountant, also provides administrative support for the director in performing special assignments and in coordinating modifications to data processing payroll programs.

Accounting responsibilities include:

- Verification of salary and encumbrance distributions, including correction and reprocessing of salary distribution rejects
- Preparation and distribution of employee withholdings and deductions payments and related reports to the federal government, the state and others, such as insurance carriers
- Maintaining integrity of employees' year-to-date salary and withholding balances on the PMF and related files
- Coordinating preparation of annual W-2 employee tax withholding forms
- Performing all accounting functions necessary to maintain integrity of payroll-related accounts

The level of payroll accounting activity is sensitive to the number of payrolls and the frequency of payment cycles. Each payroll requires verification of salary distribution and updating of master year-to-date controls. This verification occurs at least twice each week under the current payroll structure. Also, alternating payment cycles of the two permanent payrolls results in weekly preparation/verification of encumbrance reports, retirement reports, tax sheltered annuity and other employee deduction reports. There is a direct relationship between the frequency of payment cycles and the frequency of payroll accounting functions. A decrease in the number of payment cycles would be accompanied by a proportionate decrease in salary and encumbrance distribution and reports verification activity.

Payroll accountants are responsible for investigating and reprocessing salary account distribution transaction rejects. The distribution of salary payments to accounting records is rejected when employee records do not contain current budget codes. A large volume of salary distribution rejects occurs each fiscal year-end and again in October in connection with the onset of new funding years for supported projects. As previously discussed in this report, current practice for handling projects pending final funding authorization is contradictory and pushes onto payroll accountants a substantial burden of processing budget distribution corrections.

Payroll Records Team

The payroll records teams is responsible for the storage and maintenance of payroll records and employee payroll files and subsequent microfilming of payroll documents. These clerks also assist in processing incoming and

outgoing attendance documents. While 1.8 full-time equivalent positions are allocated to this function, there are actually five clerks who alternate their time between records maintenance and processing the periodic payrolls, that is EYE, extracurricular activities and end-of-month supplemented payrolls.

Basically, there are two groups of payroll files. The first is payroll documents and reports emanating from attendance processing. Included in this group are location summary attendance vouchers, nonpermanent employee individual time vouchers, leave and attendance processing reports, pay registers, master pay and deduction worksheets and various accounting and employee deduction reports. The second file group contains individual employee payroll data and includes certain employee withholding and deductions authorization and documentation supporting Division of Payroll generated adjustments to employee salaries and leave balances. All documents in the first group are regularly subject to microfilming to reduce physical storage requirements and in the second group, certain employee withholding and deduction authorization forms are microfilmed semiannually.

The type and volume of attendance processing reports subject to storage and subsequent microfilming is largely a product of payroll cycle design. The number of separate payrolls and the reliance on hardcopy reports for data reference and retrieval contribute to records maintenance requirements. The following observations reflect the negative impact current payroll cycle design has upon records storage requirements.

- Each week a report is produced reflecting updating of salary encumbrances. However, since professional and supporting services payrolls are paid on alternating Fridays, encumbrances actually change only for the payroll paid each week, though employees from both payrolls are included in the weekly report. About half of this 850 page report is unnecessary.

- As the different payrolls use similar pay register data processing programs, overtime distribution reports are produced whether or not a payroll is subject to overtime charges.

- Master pay and deduction reports are produced weekly listing pertinent payroll-related information included in employee PMF records. While current employee PMF information is otherwise available through on-line computer terminals, these reports in the aggregate, provide a useable source for access to historic data not available through the PMF.

- Each quarter a pay file is produced listing all payments to employees that quarter. This report (2,500 pages) supports year-to-date salary and deduction balances contained in employee PMF records.

- Leave balance reports are produced as part of the professional and supporting services attendance processing. As there is no on-line access to leave file information, this weekly 690 to 840 page report represents the only source of individual employee leave information.

Reliance on hard copy reports for reference to current and historic data, in particular, increases the burden of records retention, retrieval and eventual microfilming.

The division maintains employee files for documents supporting payroll actions. These files include Personnel Action Notices (PANs), correspondence with employees, miscellanous deduction authorization forms and sick leave bank grant forms. PANs which require the division to calculate adjustments to salaries and leave balances are retained in employee files as authoritative support for payroll adjustments, and provide a documented transaction audit trail. PANs which do not necessitate adjustments, but merely inform the division of personnel actions, are also maintained in employee files.

Implications of the Findings

Division of Payroll staffing, adjusted for prior use of temporary employees, has increased about ten percent over the past five years. The division also relies regularly upon overtime to supplement staff resources during peak activity periods. Division staffing and reliance on overtime contrasts sharply with payroll operations of selected neighboring county school systems. MCPS staff utilization, as measured by the ratio of employees paid to payroll staff ranges from 49 percent to 58 percent of the working levels of the four comparison counties. Although direct comparison across counties is difficult due to the variability of respective payroll operations, the existing disparity suggests significant overstaffing of MCPS payroll operations. Yet, MCPS is the only county which relies on overtime, suggesting, at least during peak periods, that staff resources are inadequate to meet assigned responsibilities.

Combining the implications of the findings of this intercounty comparison with findings of payroll system inefficiency noted throughout this report strongly suggests that the costs of MCPS payroll operations is excessive. Several factors come together to explain the size of MCPS payroll operations.

The efficient utilization of Division of Payroll staff is seriously constrained by a payroll system whose design is inefficient and lacking adequate technological support. A revealing distinction between MCPS and the comparison counties may lie in the age of their respective payroll systems. Baltimore, Anne Arundel and Fairfax counties are functioning with payroll systems designed in 1980. The MCPS payroll system was last modified in 1976. However, the basic design, the basic methodology, utilizes procedures developed over a decade ago. For example, before 1976, employee payroll records were segregated from employee personnel records. In 1976, employee records, except leave balances, were combined. That undertaking stopped short of implementing complimentary design changes beneficial to the payroll cycle. There remains a large gap in automated support for assisting payroll response to personnel actions. As a result, payroll clerks devote an estimated 45 percent of their time responding to personnel actions, annually preparing thousands of manual adjustments in what otherwise purports to be an automated system.

The Division of Payroll operates six independent payrolls, annually processing 122 payment cycles. The division, under its team concept, is fully staffed with team supervisors and account clerks to meet this workload. The division

could operate concurrently the four regular biweekly payrolls without adjusting staff resources. The alternate two payroll structure recommended in Chapter 7 and the accompanying decline in payment cycles strongly suggests a reduction of two payroll team supervisory positions and at least one payroll accountant is feasible.

Division of Payroll verification philosophy overemphasizes the need for divisional verification of externally generated data. Procedures often ignore and are thus redundant to verification responsibilities applied elsewhere in MCPS or as effected by computer controls. This philosophy also overreacts to problem potential, resulting in misdirected clerical efforts. Annual verification of EYE employment records is an example which vividly illustrates the effects of this philosophy.

New employee records are created each year for professional employees who will be working in EYE assignments. The Department of Adult Education is responsible for creating EYE records. An EYE coordinator controls information input and verifies the correctness of employee records. EYE salaries, except for certain flat hourly rates, are derived from salaries of employees' regular positions and are system generated; that is directly calculated and recorded by special computer programs. In spite of the verification efforts of the Department of Adult Education and the automated basis for deriving EYE wage rates, payroll clerks are directed to verify all of the several thousand Personnel Action Notices supporting the creation of EYE records. Errors do occur, even in system generated salaries. However, 100 percent verification ignores both the probability for error and the source of error.

Alternate strategies for assuring the integrity of information which acknowledge total "system" verification efforts, which are tempered by the realities of error probability and which consider the source of errors, would avoid the wasteful absorption of staff resources attending current divisional practice.

The microfilming of employee W-4 tax withholding declarations and of deduction authorization forms, such as for credit union deductions, should be discontinued. This practice provides no measurable benefit and in fact obfiscates knowledge of and access to current authorization data. Hardcopy authorization forms should be stored in separate files, as now done; and as superceded by revised employee declarations, should be removed and transferred to the employee's central file folder.

Employee payroll files are, in part, a duplication of employee files maintained by the Department of Personnel Services. Personnel files contain copies of all Personnel Action Notices (PANs) as documentation of and audit trail for personnel actions. Payroll files also contain copies of all PANs, only a portion of which are required as documentation of payroll actions. The division should discontinue the practice of filing PANs which are not required to support payroll computations of salary and leave adjustments.

The magnitude of payroll filing requirements is in large measure a product of the current payroll system which, due to deficiencies in automation, causes large numbers of clerical adjustments. For example, were leave benefits accounting integrated with personnel recordkeeping, as recommended in Chapter

5, leave adjustments arising from personnel actions would be system generated rather than manually calculated, reducing substantially the volume of documentation retained in payroll files. A new payroll system would substantially reduce payroll filing requirements. At that time, further consideration should be given to the possibilities for consolidating remaining payroll filing requirements within the personnel employee filing system.

Recommendations in this report have, whenever appropriate, been accompanied by an estimate of savings in staff resources achievable by implementing recommended changes in payroll system operations. These individual estimates when combined, do not necessarily capture fully the efficiencies achievable from redesigning the current payroll system. Estimated savings are defined in terms of the present system whose foundation is premised on outmoded technology. A decision has been made to replace present payroll applications. However, the actual design phase has not yet begun. Real benefits of a replacement system cannot be pinpointed without reference to a specific design blueprint. Numerous design options exist and tens of decisions are still to be made. Yet, the mere decision to replace payroll applications offers tremendous opportunities to create an efficient system grounded in a technologically advanced environment. The findings in this chapter suggest a real probability of achieving a 40 to 50 percent savings, including a reduction of an additional six positions, in the Division of Payroll operating budget by implementing a new payroll system.

Findings: Historical Payroll Information

The payroll system lacks an effective mechanism for accumulating and accessing payroll transaction history. The division is faced daily with the need to research individual employee attendance and compensation history and periodically is requested to provide aggregate information of selected payroll-related activity. Researching employee information is a laborious process because there is no centralized source of transaction history. For example, were the division required to research leave reported by an employee during a six month period, a payroll clerk would have to reference and examine attendance reports for each of the thirteen pay periods to accumulate a history of leave reported during the period in question. Requests for aggregate analyses of selected payroll information cannot be satisfied, because there is no computer-assisted information retrieval process capable of isolating and analyzing selected payroll data.

Implications of the Findings

The lack of an effective mechanism for providing access to payroll transaction history is a serious deficiency of the current payroll system. Ready access to historical data is necessary both to meet daily payroll operational requirements as well as to satisfy administrative informational needs. Yet, the payroll system is incapable of satisfying all but the simplist of informational requirements.

Development of the new human resources database presents an opportunity to incorporate an informational retrieval capability into the design of the new payroll system. At a minimum, the design should include systematic retention of individual employee attendance and pay transactions on the database and provide for on-line access and retrieval.

Findings: Payroll Employee Interviews

Private interviews were held individually with Division of Payroll nonsupervisory employees in which employees were given an opportunity to discuss matters they felt affected their ability to perform effectively their duties. The three most frequently registered responses were inadequacy of physical surroundings (46 percent), perceived lack of administrative support (40 percent), and being overburdened by employee phone inquiries (33 percent). Employees who registered displeasure with their physical surroundings stated that the division's office area is ugly, noisy and lacks an area in which payroll clerks can confer in private with employees. Several individuals stated their surroundings had a negative impact on their general morale. In a particularly critical comment, one such employee stated that it is "well known that Payroll is the last office to get renovation attention."

Expressions about the lack of administrative support concern feelings that payroll clerks are often overruled when dealing with employee problems. Payroll clerks felt that employees can get what they want; that all they need do is find an administrator who will accede to their demands. Most comments concerned being overruled when denying employee requests for special checks when payroll adjustments would otherwise have increased an employee's pay. Payroll clerks resent being overruled and feel there should be more support from the administration in policy matters.

There are two issues addressed in employee comments about phone inquiries; the primary issue being the burden imposed by the number of phone inquiries and a secondary issue of employee morale. Phone calls are considered disruptive and excessive. Payroll clerks stated that people should not be allowed to call at will, that location timekeepers could answer many employee questions and that some inquiries should be directed to the Department of Personnel Services. Payroll clerks resent the attitude of phone callers. The clerks stated they are expected to accept passively employee complaints. Reflective of comments made is a statement by a clerk who said complaints from employees make her "feel like being dumped on."

Implications of the Findings

The significance embodied in the comments made by payroll employees during the personal interviews implies a low state of employee morale, stemming in large measure from unpleasant surroundings, a perceived lack of administrative

support and the problems of handling employee complaints. The payroll office would benefit from some renovations. Actions which reduced the noise level would, in particular, improve working conditions. The office should have an area where payroll clerks can confer with visiting employees. Conferences must now take place either in a crowded reception area or in work locations. Designating space for employee conferences would improve the privacy of such conferences and would also avoid distractions to other payroll employees. A conference area could be designated in space to be vacated this summer by portions of the Division of Data Processing Operations.

Morale issues arising from feelings about administrative support and the problems of handling employee complaints are related. The number of special paychecks issued annually, from all sources, is insignificant, amounting to two-tenths of a percent of the total annual paycheck volume. Yet, being required to issue special checks involves strong negative feelings. MCPS policy administration provides for some flexibility in addressing employee needs. In a school system the size of MCPS, it should be expected that conflict will occur over the application of personnel policies. Similarly, numerous employee complaints will arise which payroll clerks in the normal course must be prepared to handle. The sensitivity associated with employee pay can heighten the tension generated through handling employee complaints. Preparing payroll employees to deal with this tension is important and should be reinforced by providing payroll employees with in-service training in conflict management.

Payroll employees must be available to respond to employee inquiries. There are, however, two ways in which to reduce the number of phone inquiries. First, is to prepare location timekeepers to accept more responsibility for managing general inquiries and questions about reported attendance. Second, is to improve initial screening of phone calls so that inquiries which should be directed to other offices can be redirected without disturbing the work of payroll employees.

Findings: Divisional Status

The Division of Payroll is a separate organizational unit in the Department of Financial Services. As such, it holds a level of visibility and maintains an administrative structure associated with divisional status. The appropriateness of divisional status revolves on several issues, including

- Does the division occupy a position of influence over policy matters consistent with divisional status?
- If the payroll system is basically in a reactive processing environment, does its operation require the visibility accruing from divisional status?
- Is divisional status appropriate, if payroll operations were considered a specialized extension of financial accounting?

- Could payroll and general accounting operations be combined? Would such a combination be administratively effective?

- Would eliminating divisional status improve parochial interests by shifting payroll representation to the departmental level.

The payroll system is driven largely by personnel policy, over which it has little input. Ostensibly its operation is reactive. That is, its function is to produce and account for salary expenditures from information generated externally. In this position, payroll system interests are at a disadvantage and may be given more effective priority were its interests expressed through a departmental spokesperson directly.

A potential merger candidate for payroll operations is the Division of Accounting. Both operations share similar functional characteristics. Further, the Division of Accounting is responsible for the preparation of financial reports, over 70 percent of which activity emanate from the payroll system.

The Division of Accounting is the subject of a separate MORE study. A final determination as to the advisability of recommending a merger of payroll and accounting operations or some other alternative structure affecting the Division of Payroll, will be deferred pending completion of the accounting study.

Recommendations

Specific recommendations concerning improvements in payroll operational efficiency have been made throughout this report and need not be restated. The importance of the findings in this chapter lead to a general recommendation that the design of a new payroll system incorporate into its options analysis the full opportunity to reduce payroll operating costs. An overall savings in the order of 40-50 percent should be considered achievable and should guide the design decision-making process. On this basis, the overall efficiency of a new payroll system, once operational, should allow a reduction of six positions and the elimination of overtime, or about $124,000 in addition to savings identified elsewhere in this report. Such savings are also contingent upon a change in divisional verification procedures, which now overemphasize the need to verify externally generated data. The verification process should be based directly upon the probability of errors and the source of information. The overemphasis on verification and control should be discouraged.

Other recommendations include

- Discontinuing the microfilming of employee deduction authorizations and the filing of nonessential personnel action notices.

- Considering the possibilities for combining Personnel and Payroll employee records filing systems.

- Including specifications for an on-line information retrieval system in the design of the new payroll system.

- Incorporating into the design of the new human resources database the capability to develop an on-line payroll information retrieval system.

- Improving the physical appearance of the payroll office, including a reduction in current noise levels within the office.

- Providing a conference area for MCPS employees to discuss personal matters with payroll employees.

- Providing payroll employees with an in-service program to assist them in handling employee inquiries and complaints.

- Reducing the number of phone inquiries directed to payroll employees by

  . Preparing location timekeepers to answer general inquiries and question concerning attendance reporting.

  . Screening phone calls so that calls pertaining to matters other than payroll can be redirected to the appropriate office without disturbing the work of payroll employees.

- Assessing the current divisional status of both Payroll and Accounting as part of the MORE Study of Accounting and Financial Services.

CHAPTER 11

STRATEGY FOR IMPLEMENTATION OF STUDY RECOMMENDATIONS

This chapter presents a strategy for implementation of recommendations made by this study and summarizes their potential cost savings. The need for such presentation is made necessary by the Report of the Task Force on Long-Range Planning for Future Use of Computer Technology. The Task Force has proposed development of a human resources management information system, which includes replacement of current personnel and payroll systems. Design developmental efforts for replacement systems are scheduled to begin in fiscal 1983 for the personnel system and in fiscal 1984 for the payroll system. The task force has proposed implementation of the new human resources data base during fiscal 1986. The planned replacement of payroll processing programs raises a question about the timing for taking action on the recommendations of this study, particularly with respect to recommendations whose implementation necessitates major payroll program modifications.

There are recommendations made in this study which can be implemented now without reference to the replacement of payroll computer programs. Recommendations which fall into this category generally concern clerical functions and responsibilities which are not associated with payroll computer programs. Changes so initiated would be equally applicable now as they would be under a new payroll system.

There is a second category of recommendations whose implementation requires payroll program modifications, and thus raises a question of timing. Recommendations which fall into this category do so for the following reasons:

- The recommendation requires modification of the personnel system (PMF) as a prior condition for implementation
- Implementing changes to payroll computer programs now must compete with the overall payroll replacement process for scarce systems development dollars. Any immediate benefit would be negated were the entire replacement process delayed.
- The cost of implementing recommendations which are incorporated into the design of the replacement payroll system would be absorbed into and would not increase the projected cost for development of a replacement system.

Because of the historic complexity and cost associated with modifying current payroll computer programs, most recommendations in this category can be implemented more smoothly, at no additional cost by inclusion in the design for the replacement payroll system rather than by modifying current payroll programs.

Recommendations Which Should Be Implemented Immediately

Recommendations Having No Specific Costs or Savings Implications

The following recommendations involve costs or savings which are not measurable in monetary terms or which are not subject to reasonable monetary measurement. None are expected to entail significant costs of implementation.

- Implement MORE Data Processing study recommendations for improved password procedures and software security. (Chapter 3)
- Round manually calculated leave adjustments to no more than one or two decimal places. (Chapter 5)
- Establish a committee to develop methods for improving the effectiveness of policies and procedures for approving disability leave and handling workman's compensation cases. (Chapter 5)
- Provide regular information notices and assistance to aid employees in making correct income tax withholding declarations. (Chapter 8)
- Discontinue the microfilming of employee deduction authorizations and the filing of nonessential personnel action notices. (Chapter 10)
- Improve the physical environment in the payroll office and provide space for holding private conferences. (Chapter 10)
- Provide an in-service program to assist payroll employees in handling employee inquiries and complaints. (Chapter 10)
- Reduce the volume of phone inquiries directed to payroll employees. (Chapter 10)

Recommendations Resulting in Specific Costs or Savings

Exhibit 11.1 presents recommendations which should be implemented immediately that result in specific costs or savings. Immediate implementation of the recommendations is feasible and will interface smoothly later with a new payroll system. Only the recommendation to establish a flat 20 percent tax withholding rate will require modifications of existing payroll computer programs. Recommendations concerning a new payroll system structure incorporate a single payment process which make tax withholding on extracurricular activities paychecks a moot issue. This recommendation is a necessary interim step to conform federal income tax withholding methodology with Internal Revenue Service guidelines.

EXHIBIT 11.1

RECOMMENDATIONS RESULTING IN SPECIFIC COSTS/SAVINGS
WHICH SHOULD BE IMPLEMENTED IMMEDIATELY

Recommendation	Savings (Costs) in Staff Years	Savings (Costs) in Dollars	Other (Costs)
Implement payroll supervisory review of manually computed leave and salary adjustments. (Chapter 3)	(.25)	($ 5,000)	-
Improve efficiency of daily payroll control procedures. (Chapter 4)	1.2	19,000	-
Conform supported projects employee salary authorization procedures with administrative policy. (Chapter 4)	.3	5,000	-
Eliminate redundant attendance voucher validation checks by payroll clerks. (Chapter 6)	.7	16,000	-
Reassign from the Division of Payroll to reporting units responsibility for taking attendance batch control totals. (Chapter 6)	.3	5,000	-
Reassign responsibility for summarizing portions of the temporary, part-time payroll from the Division of Payroll to reporting units. (Chapter 6)	.5	9,000	-
Reduce the volume of attendance voucher corrections by revising the timetable for reporting unit submission of attendance documents. (Chapter 8)	.5	10,000	-
Establish tax withholdings on extracurricular activities payments based on the applications of a flat 20 percent rate. (Chapter 8)	-	-	(1,000)
Annualized estimated net savings (costs)	3.25	$59,000	$(1,000)
Total Net Savings			$58,000

In the aggregate, implementation of these recommendations will generate net savings of $58,000, including a reduction in Division of Payroll clerical staff of about three positions. These savings are achievable without waiting for new personnel and payroll systems.

Recommendations Which Should Be Incorporated Into Design of the Replacement Payroll System

Recommendations Having No Specific Costs or Savings Implications

The following recommendations involve savings which are not measurable in monetary terms or which are not subject to reasonable monetary measurement. The costs of implementation are assumed to be absorbed in the estimated cost of the replacement payroll system.

- Expand automated controls over extracurricular activities payments to include manual adjustments to payments. (Chapter 3)
- Provide the capability to compensate employees at more than one salary rate and to distribute salary payments to more than one budget account. (Chapter 4)
- Provide the capability to process corrective personnel actions during attendance processing when personnel files are otherwise frozen. (Chapter 4)
- Incorporate all leave accounting information into the Personnel Master File and consolidate employee recordkeeping, including leave benefits accounting, into one system. (Chapter 5)
- Fully automate the leave accounting function. (Chapter 5)
- Standardize leave and attendance reporting by all employees to an hourly basis. (Chapter 5)
- Amend the basis on which leave balances are presented on employee paycheck stubs. (Chapter 5)
- Replace use of permanent status codes with years experience information fields for determining supporting services eligibility for annual leave benefit increments. (Chapter 5)
- Define reporting locations as the appropriate level for batch controlling attendance data. (Chapter 6)
- Reevaluate administrative and/or Board of Education policies which significantly impact the complexity of payroll procedures. (Chapter 7)

- Incorporate compensation for personal services to independent school activities into employees' regular paychecks and provide a system of reimbursement to MCPS by school Independent Activity Funds. (Chapter 8)

- Consider possibilities for combining Personnel and Payroll employee records filing programs. (Chapter 10)

- Develop an on-line payroll information retrieval system. (Chapter 10)

Recommendations Resulting in Specific Savings

Exhibit 11.2 presents recommendations resulting in specific savings which should be incorporated in the design of the replacement payroll system. The recommendations included in this section require basic revisions to current payroll computer programs, and several, as indicated in their respective chapters, will require enabling revisions to personnel programs as well. These recommendations should be incorporated into the design of a new payroll system. As a group they should direct and guide the new development effort. In fact, certain recommendations, particularly redesign of the attendance processing cycle and multi-payroll structure, reach to the foundation of the payroll system, and can be implemented only through replacement of current programs.

As a package, implementation of the recommendations in this section will, upon installation of a new payroll system in fiscal 1986, generate (in current dollars) annual savings of about $529,000, including fringe benefits associated with salary costs. Installation of the new personnel system will generate an additional savings to the Division of Payroll of .75 person years or $13,000. Once these recommendations are implemented and the new personnel and payroll systems are operational, Division of Payroll staffing should be reduced by an additional seven positions and the need for staff overtime eliminated, with a corresponding recoverable savings, including fringe benefits, of about $146,000. These savings are in addition to the savings of about three positions in the Division of Payroll, or $59,000 overall, achievable through the recommendations which can be implemented immediately.

Reductions in computer attendance processing time will make available annually for other use about 537 hours computer time, with an equivalent opportunity cost savings of $336,000. Implementation of a voluntary direct deposit program provides other opportunity cost savings of $60,000. Though the total $396,000 in opportunity cost savings does not translate into actual line item budget reductions, the amount does constitute a tangible benefit to MCPS. For example, the reduction in computer resources dedicated to payroll processing will not reduce the level of computer and data processing support personnel costs. It does make available the opportunity to improve overall cost effectiveness by reallocating scarce computer resources from payroll to other important computer-supported functions.

The aggregate estimated cost savings of $529,000 will return to MCPS the $326,000 investment in a new payroll system in approximately 8 months, which more than meets the criterion in the MORE Data Processing report that new systems development should be undertaken if payback is less than three years.

EXHIBIT 11.2

RECOMMENDATIONS RESULTING IN SPECIFIC SAVINGS
WHICH SHOULD BE INCORPORATED INTO DESIGN OF THE
REPLACEMENT PAYROLL SYSTEM

Recommendation	Recoverable Savings		Opportunity Cost Savings			Total Savings
	Staff Years	Staff Dollars	Computer Hours	Computer Dollars	Other Savings	
Automate the attendance voucher corrections process. (Chapter 8)	.3	$ 6,000	-	$ -	$ -	$ 6,000
Eliminate the need for a special fiscal year-end cutoff payroll. (Chapter 8)	.2	3,000	32	20,000	-	23,000
Redesign the attendance processing cycle. (Chapter 6)	-	-	50	32,000	-	32,000
Consolidate existing payrolls into a two payroll structure. (Chapter 7)	-	-	455	284,000	-	284,000
Implement a voluntary direct deposit program. (Chapter 9)	-	-	-	-	60,000	60,000
Efficiencies achievable in the Division of Payroll from a new payroll system. (Chapter 10)	6.0	124,000	-	-	-	124,000
Annualized estimated savings	6.5	$133,000	537	$336,000	$60,000	$529,000
Estimated cost to develop a new payroll system						$326,000
Investment payback period						8 months

Conclusion

There is substantial linkage between recommendations in this study. A common theme among both the recommendations which can be implemented immediately and which should be incorporated, into the design of the replacement payroll system is improvement in operational efficiency. Hence, implementation should proceed as a coordinated effort to effect such efficiencies in the payroll system. A piecemeal approach toward implementing these recommendations will not assure the full cost savings identified in this report. Historically, payroll system computer programs have had a series of quick- fixes with no lasting benefit. Only through a coordinated design of a new payroll system can the recommendations of this study be implemented in an effective manner with the full benefit of associated cost savings.

APPENDICES

APPENDIX A

Payroll Study Methodology

Preliminary Phase

At the beginning of the project, a meeting was held with the superintendent to develop the general objectives of the payroll study. A preliminary survey of administrators and supervisory personnel was then conducted to identify major payroll issues to be investigated. A series of informal meetings were held with the acting associate superintendent for supportive services; with the directors of the Department of Financial Services, Management Information and Computer Services, and Personnel Services; and with the directors of the Divisions of Payroll, Salary Administration, Certification and Records, Accounting, Systems Development and Data Processing Operations. Additional meetings with divisional supervisory personnel were held to develop basic knowledge of payroll system operations. Lastly, a review was made of the MORE data processing report and the 1974 Payroll Task Force report and documents for identification of payroll issues. The issues identified were summarized in report form and circulated to the above mentioned administrators for comment and revision. A final Report of Preliminary Survey was then presented to the superintendent and the Board of Education.

Interviews, Analysis and Audits

Numerous interviews were held with administrators and supervisory personnel and many documents were examined in the process of acquiring a thorough knowledge of the payroll system. This knowledge was distilled into a detailed set of flowcharts describing the application of procedures, distribution of functions and responsibilities, and the interaction between the budget, personnel and payroll systems. The flowcharts were circulated to administrators for comment and revision. The flowcharts were a major tool used in identifying the strengths and the weaknesses of the payroll system. Strengths which comprised the system of authorizations and internal control were selected for test verification in the fiscal audit. Other strengths and weaknesses were categorized and incorporated into the investigation of study issues.

Fiscal audit procedures employed statistical sampling for attributes in testing the level of reliance to place on the system of authorizations and internal controls. Two random samples were drawn, the first from the

population of checks issued through the professional and supporting services payrolls, the second from the population of checks issued through all other payrolls. Two separate samples were used to segregate payroll groups according to like authorization and control attributes. Both populations were defined as including all checks issued through the respective payrolls during the period July 1, 1980 through May 15, 1981. Aggregate payroll transaction audit tests were performed on selected payment cycles. Two payment cycles each from the professional, supporting services, temporary, part-time, and substitute teachers biweekly payrolls and one payment cycle each from the extended year employment and extracurricular activities periodic payrolls were selected for transaction audit testing.

The selection of schools for the survey of timekeepers was made by choosing those schools at which employees included in the above mentioned attribute samples were assigned. The sample included 39 schools from a total of 177 schools or 22 percent of the population.

Time measurements used in the study were developed by the Division of Payroll and represent an estimate of time required, on the average, to complete specific payroll tasks. These estimates were reviewed for reasonableness by the project staff against total available staff hours and other known milestones. Revised estimates were then prepared by the division.

APPENDIX B

OVERVIEW OF THE PERSONNEL ACCOUNTING FUNCTION

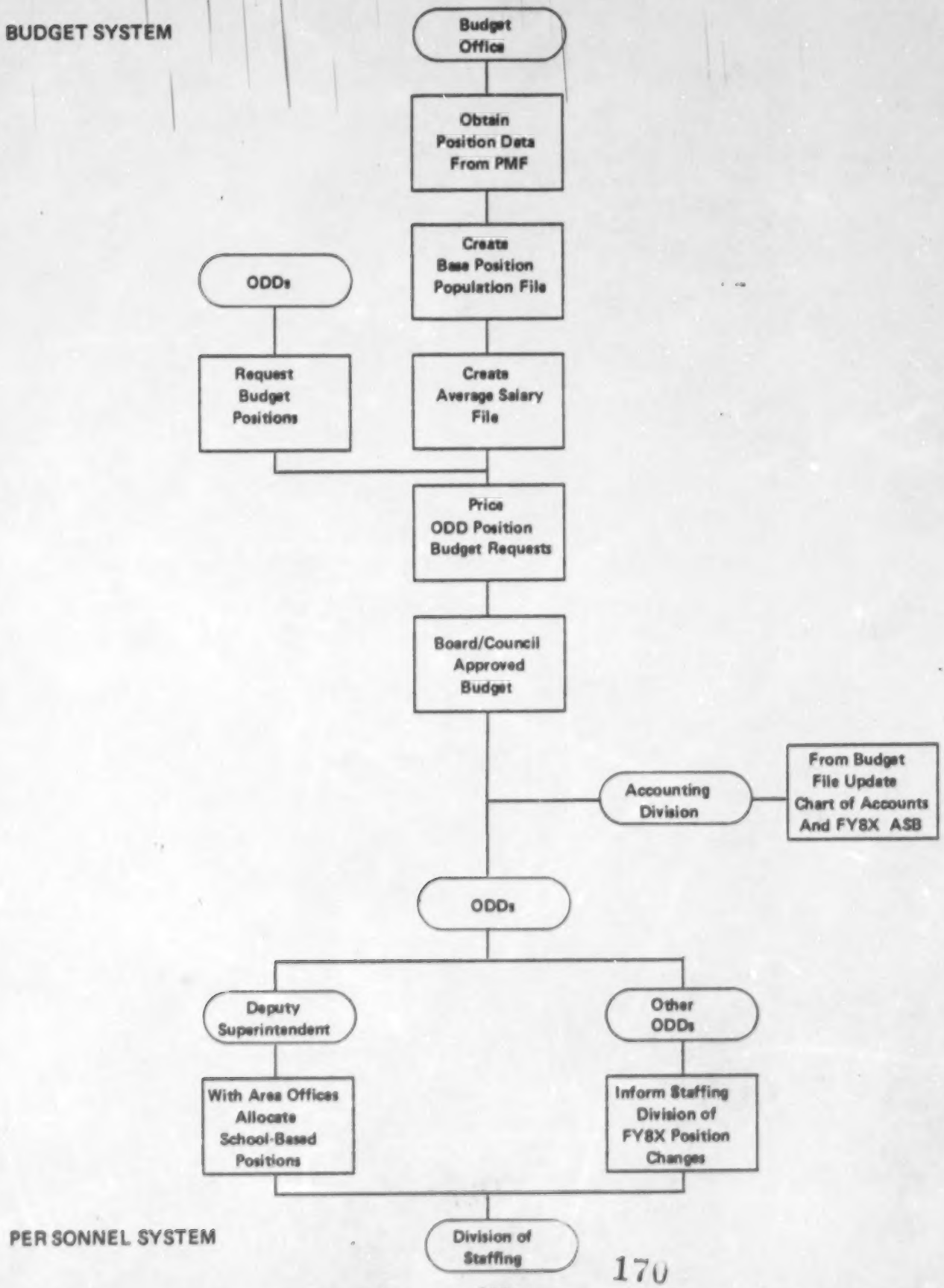
The flowchart included in this appendix is presented as a supplement to the general description of the payroll system contained in Chapter 2. This brief overview is provided to assist the reader in understanding the position of the payroll system within the personnel accounting function and within this function, the relationship of payroll to the budget and personnel systems.

Abbreviations and symbols used in the flowchart are

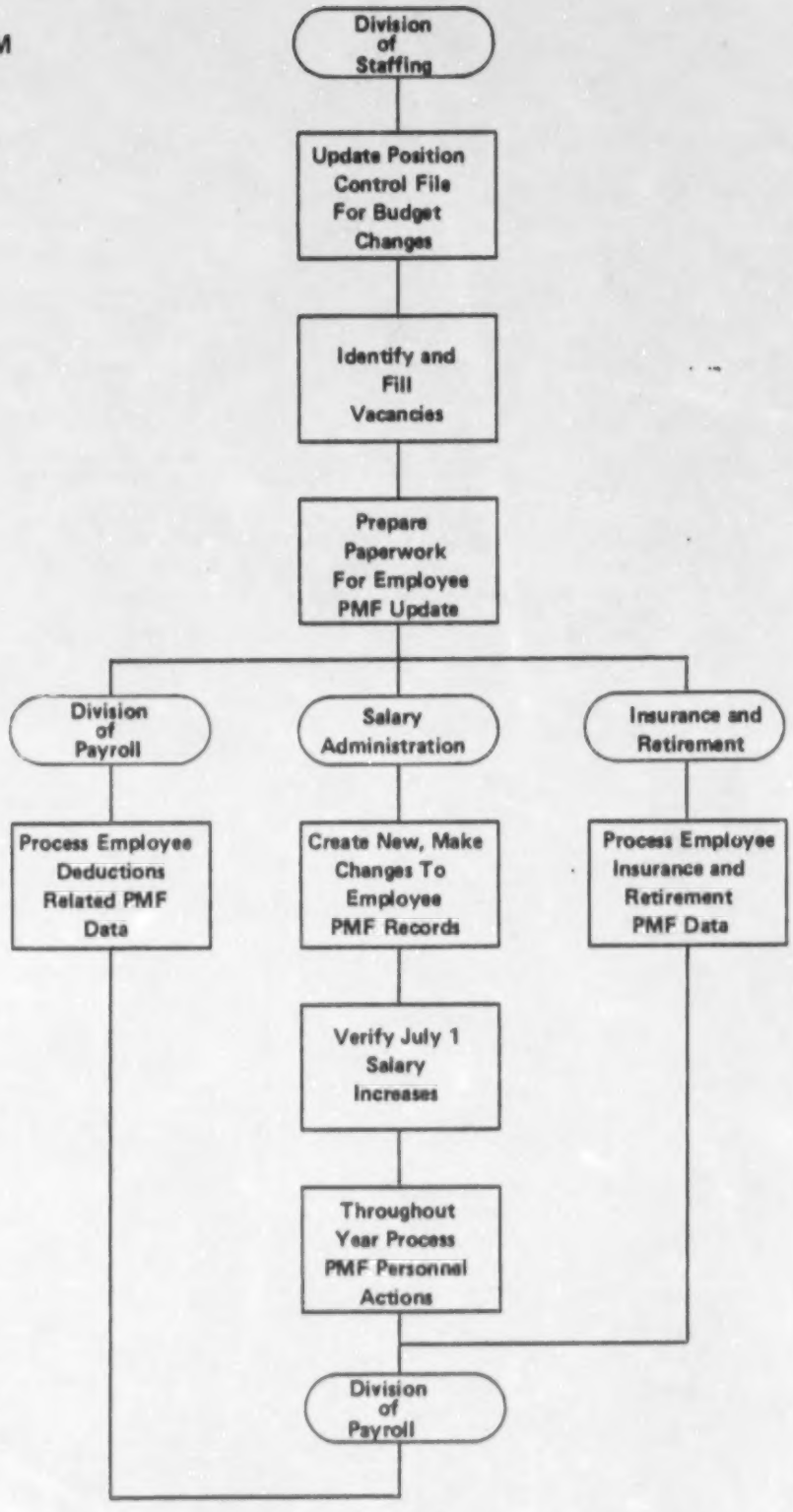
PMF	Personnel Master File. The computerized file containing all basic employee personnel and payroll related information.
ODD	Office, Department, Division. School system administrative reporting units, such as, Deputy Superintendent's Office, Department of Financial Services, etc.
ASB	Account Summary Balances. The school system's general accounting ledger.
	Symbol designates the office within which flowcharted activity occurs. Overall, its use reflects the flow of activity to/from participating offices.

Comprehensive flowcharts were prepared during the course of the study which present in detail the operations of the systems included in this overview. Copies of these flowcharts (130 pages) are available upon request to Mr. Clifford M. Baacke, Director, Division of Administrative Analysis and Audits (279-3364).

OVERVIEW OF THE PERSONNEL ACCOUNTING FUNCTION

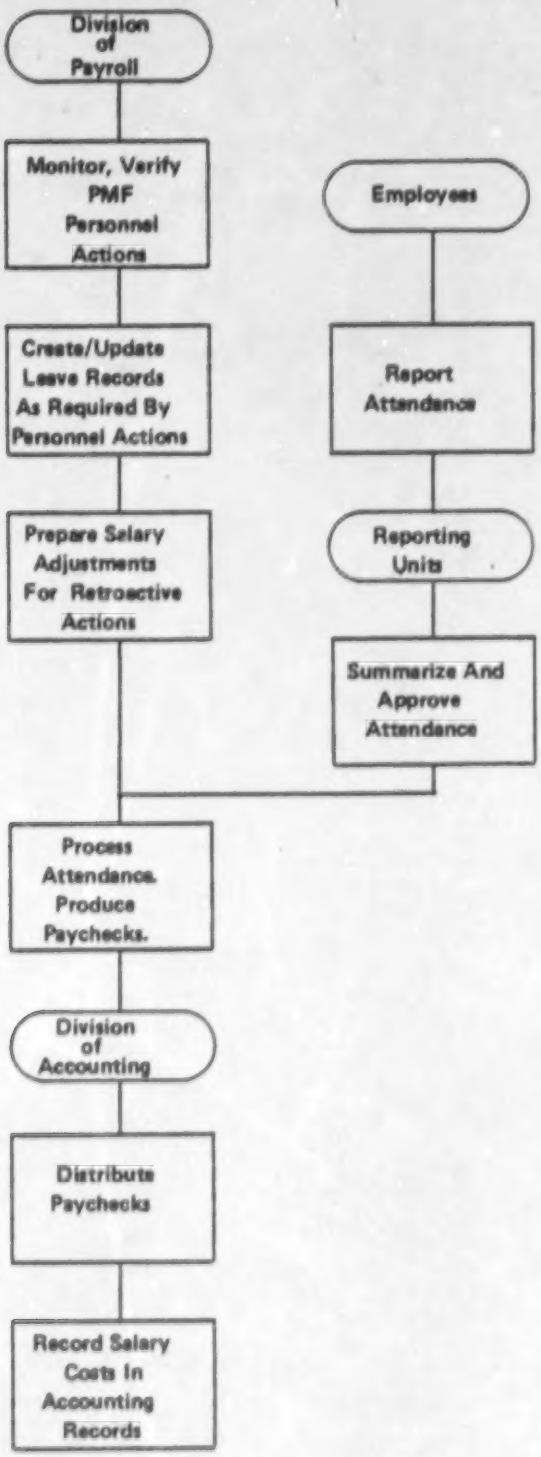


PERSONNEL SYSTEM


Division of Staffing
Update Position Control File For Budget Changes
Identify and Fill Vacancies
Prepare Paperwork For Employee PMF Update
Division of Payroll
Salary Administration
Insurance and Retirement
Process Employee Deductions Related PMF Data
Create New, Make Changes To Employee PMF Records
Process Employee Insurance and Retirement PMF Data
Verify July 1 Salary Increases
Throughout Year Process PMF Personnel Actions
Division of Payroll

PAYROLL SYSTEM

PAYROLL SYSTEM



APPENDIX C

THE MID-ATLANTIC CLEARING HOUSE ASSOCIATION, INC.

MEMBER FINANCIAL INSTITUTIONS

MARYLAND

American National Building & Loan Assn.
The Annapolis Bank & Trust Company
Annapolis Federal Savings & Loan Assn.
Atlantic National Bank
Augusta Savings & Loan Assn.
Baltimore County Savings & Loan Assn.
Baltimore Federal Savings & Loan Assn.
Bank of Bethesda
The Bank of Brandywine
Bank of Brunswick
The Bank of Damascus
The Bank of Delmar
The Bank of Glen Burnie
Bank of Maryland
Bank of Ocean City
Bank of Southern Maryland
Bohemian American Savings & Loan Assn. Inc.
Brehm Savings & Loan Assn., Inc.
Calvert Bank and Trust Company
Calvert Savings & Loan Assn., Inc.
Calvin B. Taylor Banking Company
Capital Savings & Loan Assn.
The Caroline County Bank
Carroll County Bank & Trust Company
Carrollton Bank of Baltimore
Cecil National Bank
Central National Bank of Maryland
Central Savings Bank
The Centreville National Bank of Maryland
Century National Bank
Chesapeake Savings & Loan Assn.
The Chestertown Bank of Maryland
Chevy Chase Savings & Loan Assn.
Citizens Bank of Keedysville
Citizens Bank & Trust Co. of Maryland
The Citizens National Bank
Clifton Trust Bank
Columbia Bank and Trust Company
Commercial and Farmers Bank
Commercial and Savings Bank
Community Savings & Loan, Inc.
County Banking & Trust Company
County Federal Savings & Loan Assn.
Cumberland Savings Bank
The Denton National Bank
The Detour Bank
Eastern Shore National Bank
Elkridge National Bank
Equitable Savings & Loan Assn., Inc.
The Equitable Trust Company
Fairmount Savings & Loan Assn., Inc.
Fairview Federal Savings & Loan Assn.
Farmers and Mechanics National Bank
Farmers and Merchants Bank – Fowblesburg
Farmers and Merchants Bank of Hagerstown
Farmers and Merchants National Bank
The Farmers National Bank of Maryland
Fidelity Federal Savings & Loan Assn.
First American Bank of Maryland
First Federal Savings & Loan Assn. of Annapolis
First Federal Savings & Loan Assn. of Cumberland
First Federal Savings & Loan Assn. of Hagerstown
First Maryland Savings & Loan, Inc.
First National Bank of Maryland
First Women's Bank of Maryland
The First National Bank of North East
The First National Bank of Oakland
The First National Bank of St. Mary's
First National Bank of Southern Maryland
The First National Bank & Trust Company of Western Maryland
The Forest Hill State Bank
Francis Scott Key Bank & Trust Company
Frederick County National Bank of Frederick
Fredericktown Bank and Trust Company
Friendship Savings & Loan
Frostburg National Bank
Garrett National Bank in Oakland
Golden Prague Building Loan & Savings Assn.
Golden Ring Savings & Loan Assn.
Government Services Savings & Loan, Inc.
Guardian Federal Savings & Loan Assn.
Hagerstown Trust Company
Hamilton Federal Savings & Loan Assn.
Hampstead Bank of Carroll County, Md.
Harford National Bank
Heritage Savings Association
Homewood-Clinton Savings & Loan Assn.
John Hanson Savings & Loan, Inc.
Kennedy Bank and Trust Company
Key Federal Savings & Loan Assn.
The Laurel Building Assn. of Prince George's County
Leeds Federal Savings & Loan Assn.
Liberty Federal Savings & Loan Assn.
Liberty Trust Company
Lincoln National Bank
Loyola Federal Savings & Loan Assn.
Madison Square Permanent Building Assn.
Maryland Bank and Trust Company
Maryland Federal Savings & Loan Assn.
Maryland National Bank
Maryland State Bank
Mercantile Safe Deposit & Trust Company
Merritt Savings & Loan, Inc.
Metropolis Building Association
Metropolitan Federal Savings & Loan Assn. of Bethesda
Middletown Valley Bank
Montgomery Federal Savings & Loan Assn.
Myersville Savings Bank
NASA Federal Credit Union
The National Bank of Cambridge
The National Bank of Rising Sun
The New Windsor State Bank
Odenton Federal Savings & Loan Assn.
Old Court Savings & Loan, Inc
Patapsco Federal Savings & Loan Assn.
Peninsula Bank
The Peoples Bank of Elkton
The Peoples Bank of Kent County, Md.
The Peoples Bank of Maryland
Peoples Security Bank of Maryland
Potomac Valley Bank

Provident Savings Bank
Provident State Bank
Reisterstown Federal Savings & Loan Assn.
Riverside Federal Savings & Loan Assn.
Rosedale Federal Savings & Loan Assn.
Royal Oak Federal Savings & Loan Assn.
Saint Michaels Bank
Sandy Point National Bank and Savings Institution
The Savings Bank of Baltimore
School Employees of Baltimore County Federal Credit Union
Sharon Building & Loan Assn., Inc.
Sparks State Bank
Standard Federal Savings & Loan Assn.
State National Bank of Maryland
State-Sun Federal Savings & Loan Assn.
St. Casimirs Savings & Loan Assn., Inc.
Suburban Federal Savings & Loan Assn.
Suburban Trust Company
The Sudlersville Bank of Maryland
The Talbot Bank of Easton, Maryland
Taneytown Bank and Trust Company
The Thurmont Bank
Timonium Federal Savings & Loan Assn.
Tower Federal Credit Union
Union National Bank
Union Trust Company of Maryland
United Bank & Trust Company of Maryland
United Federal Savings & Loan
Vanguard Savings & Loan Assn.
Vermont Federal Savings & Loan Assn.
Washington County National Savings Bank
Westminister Trust Company
Westview Federal Savings & Loan Assn.
Woodbine National Bank
Woodsboro Savings Bank of Frederick County, Md.
Yorkridge Federal Savings & Loan Assn.

NORTHERN VIRGINIA

Arlington-Fairfax Savings & Loan Assn.
The Bank of Vienna
Bank of Virginia
Burke and Herbert Bank & Trust Co.
Central Fidelity Bank of Northern Virginia
Commonwealth Bank and Trust Co.
Commonwealth Savings & Loan Assn.
Continental Bank & Trust Company
Dominion Federal Savings & Loan Assn.
Dominion National Bank
Family Savings & Loan Assn. of Virginia
The Farmers and Merchants National Bank
First American Bank of Virginia
First American Savings & Loan
First Commercial Bank
First Commonwealth Savings & Loan Assn.
First Federal Savings & Loan Assn. of Alexandria
First Federal Savings & Loan Assn. of Arlington
First and Merchants National Bank
First Virginia Bank
First Virginia Bank - Loudoun
Fort Belvoir Federal Credit Union
The George Mason Bank
Guaranty Bank and Trust Company
Herndon Federal Savings & Loan Assn.
Independent Bank of Manassas
The McLean Bank
Metropolitan Savings & Loan Assn., Inc.
The Middleburg National Bank
The National Bank of Fairfax
Newgate Savings & Loan Assn.
The Northern Virginia Bank
The Peoples National Bank of Leesburg
Piedmont Federal Savings & Loan Assn.
Providence Savings & Loan Assn.
Round Hill National Bank
Suburban Savings & Loan Assn.
The Town and Country Bank and Trust Company
United Savings & Loan Assn.
United Virginia Bank/National
Virginia National Bank
Washington-Lee Savings & Loan Assn.

DISTRICT OF COLUMBIA

American Indian National Bank
American Security Bank, N.A.
Bank of Columbia, N.A.
Capital City Federal Savings & Loan Assn. of Washington, D.C.
Columbia Federal Savings & Loan Assn.
Community Federal Savings & Loan Assn.
District of Columbia National Bank
Eastern-Liberty Federal Savings & Loan Assn.
First American Bank, N.A.
First Federal Savings & Loan Assn. of Washington
Hemisphere National Bank
Home Federal Savings & Loan Assn.
Independence Federal Savings & Loan Assn. of Washington
Industrial Bank of Washington
Interstate Federal Savings & Loan Assn.
Jefferson Federal Savings & Loan Assn.
Madison National Bank
McLachlen National Bank
Metropolis Federal Savings & Loan Assn.
The National Bank of Washington
The National Capitol Bank of Washington
National Permanent Federal Savings & Loan Assn.
National Savings and Trust Company
Northwestern Federal Savings & Loan Assn.
OBA Federal Savings & Loan Assn.
Perpetual American Federal Savings & Loan Assn.
The Riggs National Bank of Washington
Security National Bank
United National Bank of Washington
Washington Federal Savings & Loan Assn.
The Women's National Bank

WEST VIRGINIA

Bank of Charles Town
Farmers and Merchants Bank of Keyser
The Grant County Bank
The National Bank of Keyser
Peoples Bank of Charles Town